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Edited by EDWIN D. KILBOURNE

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The Editor recognizes the inevitable incompleteness and arbitrary selectivity of any abstracting service, including this one. It is his belief that the usefulness of the present Abstracts section will be enhanced if the reader is informed of the general purpose of the abstracts and the criteria employed in their selection.

It is the purpose of the Abstracts section to acquaint the diversified and international readership of the REVIEW with the gist of original and scientific articles which are related to the general subjects of tuberculosis or pulmonary diseases implicit in the title of the journal. In this connection, 37 abstracters systematically review 207 journals which represent 31 countries and which are published in 18 languages. In most instances, abstracters cover journals in fields of their special competence. It is evident that the diverse interests of the readers of the REVIEW dictate a balanced selection of clinical, laboratory, and epidemiologic studies. Such selection will often preclude the publication of articles equal in scientific merit to many presented here.

In the publication of abstracts, cognizance is taken of the extent to which the journals yielding them are circulated. Articles from journals of wide circulation may be mentioned by title only. This space-saving device is also employed for articles which defy condensation without the omission of essential data or discussion. The attention of readers is thus directed to the existence of papers which are no less important because they are not summarized.

ABSTRACTERS

HANS ABELES, M.D., New York, N. Y.
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G. FEDDERS, M.D., Anoka, Minn.
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MAURICE J. SMALL, M.D., Staten Island, N. Y.
EVA SOTO-FIGUEROA, Philadelphia, Pa.
KARL STEINER, M.D., New York, N. Y.
WILBUR J. STEININGER, M.D., Northville, Mich.
MOE WEISS, M.D., Glenn Dale, Md.

CLINICAL STUDIES

PULMONARY—THORACIC

Bronchial Asthma. F. C. Lowell. *Am. J. Med.*, May, 1956, 20: 778–788.

"Asthma" may be regarded as a form of diffuse bronchial obstruction characterized by a high degree of reversibility. Obstructive pulmonary disease which is not reversible is usually called "emphysema." Any change in the lung which results in a temporary or permanent reduction in the caliber of the airway will greatly augment the effect on resistance to airflow which further narrowing will have. Imagine that a bronchiole 0.5 mm. in radius undergoes a decrease in the radius of 0.1 mm. The cross-sectional area will change from 0.79 mm. squared to 0.50 mm. squared, a reduction of 36 per cent. The same bronchiole narrowed by disease to 0.3 mm. radius and then subjected to a decrease in radius of 0.1 mm. as before will give a cross-sectional area change from 0.28 mm. squared to 0.13 mm. squared, a decrease of 53 per cent. A patient with an already narrowed airway, therefore, is far more vulnerable when exposed to any agent which may cause further narrowing of the airway.

The patency of the airway will depend, among other things, on the degree of expansion or collapse of the lung. Resistance to expiration increases progressively and in a predictable fashion during expiration. This rising resistance is probably very largely a result of narrowing of the airway as expiration progresses. In the presence of asthma (and emphysema), expiration apparently comes to an end sooner because the airway closes off as the lung becomes smaller.

In a study of patients with asthma it was found that, in general, those with the severest asthma reacted most intensely to intravenously injected histamine. If the severity of the disease is a factor in determining whether or not a given dose of histamine will cause an attack, then severity may also play a part in determining whether or not a patient will have significant aggravation of symptoms following a variety of stimuli: respiratory infections; inhalation of irritating dusts, fumes, or gases; exercise; emotional upsets; and so on. The common denominator among these seems to "trigger" an already hyperirritable bronchial tree.

As dyspnea is common to both asthma and cardiac failure, a therapeutic trial with bronchodilator drugs or the demonstration of bronchial destruction (or the lack of it) by tests of pulmonary function may be helpful. As dyspnea in both conditions may be paroxysmal and as signs of obstruction may be missing in the interval between attacks of asthma, a provocative test with histamine or mecholyl may be warranted.

T. H. Noehren

Complete Bronchial Obstruction in Fibrinous Bronchitis (in Spanish). J. Piñeyro. *Toraz*, September, 1955, 4: 215–220.

A 44-year-old woman with a previous history of pulmonary tuberculosis, now inactive, developed cough and exertional dyspnea seven years later. After hospitalization the initial chest roentgenogram showed a dense homogeneous shadow extending from the hilus obliquely to the apical region. Five days later she was clinically worse and another roentgenogram showed complete opacity of the right lung field. Clinically, flatness to percussion and complete absence of breath sounds over the right hemithorax had been noted. At bronchoscopy, the trachea and carina were normal, but the right main bronchus was obstructed by a whitish, soft, easily removed body which was not adherent to the bronchial walls. The bronchial walls were congested and edematous everywhere. The material extracted from the right bronchi consisted of molds found to be composed almost entirely of a mucofibrinopurulent substance which was almost acellular. The patient's sputum was negative for acid-fast bacilli. Antimicrobials and repeated bronchial aspirations were used; the patient recovered.

F. Perez Pina

Chronic Bronchitis—an Occupational Disease of Pyrite Miners (in Italian). M. Barsotti and L. Parmeggiani. *Med. d. lavoro*, December, 1955, 46: 677–698 (abstracted in *Bull. Hyg.*, May, 1956, 31: 544–545).

A previously unrecognized occupational disease of pyrite miners in Tuscany, Italy, is reported as a chronic catarrhal bronchitis with a definite superimposed asthmatic component.

The disease appears on the average after eight to ten years of work underground. Though it is recognized that pyrite miners are susceptible to silicosis, this disease is not due to inhalation of silicogenic particles but to sulfur dioxide. It is particularly affected by humid weather and is worse in autumn and spring. Chest roentgenograms reveal an increase in lung markings and, often, enlarged hilar shadows. More severe cases reveal coarse reticulation and ill-defined miliary nodules which are differentiated from silicosis with considerable difficulty. Emphysema may occur. The infrequent association with pulmonary tuberculosis and roentgenographic improvement after removal from the mine distinguish this condition from silicosis. Clinical details and roentgenograms of several cases, all originally diagnosed as silicosis, are presented.

Prophylaxis to avoid this disease includes adequate ventilation; careful selection of workers, with exclusion of those with tendency to or history of bronchitis; and periodic chest roentgenograms. It is recommended that this disease be recognized as occupational in origin and that compensation be granted when partial disability reaches 21 per cent.

M. Weiss

The Fate of Children with Bronchiectasis. C. Strang. *Ann. Int. Med.*, April, 1956, 44: 630–656.

A follow-up study has been carried out on 209 children with bronchiectasis. The period of follow-up extended from 2 to 15 years, with an average of 6.4 years among the survivors.

Patients with fairly localized cylindric bronchiectasis with mild symptoms did extremely well when treated conservatively. There was no mortality in these patients and, although most of them still have cough and sputum, they are able to lead normal lives without any restriction of activity. Patients in whom the disease was too extensive to warrant surgery had to be treated medically. Inevitably the prognosis in a group of such cases is bad and many die of acute pulmonary infections or other complications. The occasional patient, however, did show striking improvement, and symptoms diminished as the child grew up. In assessing the prognosis of such a case, the nature of the symptoms was often of greater importance than the anatomic extent of the bronchiectasis. Fetid sputum, copious expectoration, frequent feverish bouts, and finger clubbing were unfavorable prognostic signs.

The results of operative treatment in children suffering from asthmatic attacks were disappointing. Not only did the asthmatic attacks persist, but the cough, sputum, feverish attacks, and dyspnea also were not improved and, particularly after pneumonectomy, the child may be rendered anoxic. The best results were obtained in patients with localized yet severely infected bronchiectasis. These cases are often associated with a collapsed lower lobe, and its removal may give complete relief from distressing symptoms.

There was no evidence from a study of these cases to support the concept of bronchiectasis as a spreading process. The chest films taken at the follow-up examination did not show any clear evidence of spread, either in cases treated conservatively or in those following operation. Although bronchiectasis may appear if a suitably predisposing illness develops, this must be extremely rare, and in general the pattern of the disease remains unchanged over long periods of time.

T. H. Noehren

Pulmonary Haemosiderosis Associated with Bronchiectasis. A. H. Cameron. *Thorax*, June, 1956, 11: 105–112.

Pulmonary hemosiderosis was found at necropsy in a boy of fifteen years with bronchiectasis, and in a coal miner of fifty-one years with simple pneumoconiosis and bronchiectasis. Cor pulmonale and hyperplastic changes in the small vessels of the lung indicated that there had been pulmonary hypertension in both patients. The hyperplastic vascular changes were of different morphologic appearances in the 2 cases, but in both they were diffuse throughout the lungs. In the boy, hemosiderosis was limited to the bronchiectatic areas. Hemosiderin was present in alveolar phagocytes and was deposited on the elastica of alveolar walls and small blood vessels, where it was associated with a foreign-body giant-cell reaction. In the adult, hemosiderin was seen also on fragmented elastic tissue in bronchiolar walls where there was a similar giant-cell reaction. In both cases, the hemosiderosis is considered to be the result of hemorrhage from bronchial or bronchiolar

mucosa. It is suggested that pulmonary hypertension and inflammatory vascular engagement are responsible for the mucosal hemorrhage. Attention is drawn to the presence of ferrous iron, calcium, and phosphates, as well as hemosiderin, in pulmonary hemosiderosis.

A. G. COHEN

Recurrent Pulmonary Hemorrhage with Hemosiderosis: So-Called Idiopathic Pulmonary Hemosiderosis. A. J. BRUWER, R. L. J. KENNEDY, and J. E. EDWARDS. *Am. J. Roentgenol.*, July, 1956, 76: 98–107.

Reports of 3 cases of so-called idiopathic pulmonary hemosiderosis are added to the 43 already referred to in the literature. It is stressed that this is an entity with characteristic clinical, roentgenographic, and pathologic features. The ratio of females to males in the reported cases is approximately 3:2. The patient's age at onset of the disease has been five years or less in the majority of cases reported. The most common manifestation is recurrent pulmonary hemorrhage leading to anemia and pulmonary hemosiderosis. Pulmonary fibrosis also may be present. The disease may be acute and the result fatal in a matter of months, or it may be insidious and of prolonged duration. The prognosis is usually poor, although recovery is not unknown. It is suggested that the underlying cause of the pulmonary hemorrhage may be a hypersensitivity state (Authors' summary).

T. H. NOEHREN

Bronchopulmonary Fistulas in Resection for Tuberculosis (in Portuguese). A. CHAPCHAP, A. ADDE, and M. AIED. *Rev. paulista de tisiol.*, November–December, 1955, 16: 221–240.

In a total of 131 pulmonary resections for tuberculosis, 32 bronchopleural fistulas resulted as a complication. Approximately 70 per cent of the resections were for advanced disease. The incidence of fistulas was higher in the patients with sputum positive for acid-fast bacilli (27 per cent against 18.6 per cent). In relation to the time of surgery, 31 per cent of the fistulas occurred within ten days, 25 per cent between ten and thirty days later, and 44 per cent after 30 days. The outcome of these cases was as follows: cured, 18; persistent fistula, 5; dead, 8.

An analysis of the material indicated that the following factors seemed to increase the probability of fistula as a complication: productive lesions, male sex, age sixteen to thirty, white race, positive sputum, bronchial lesions proved by bronchoscopy, absence of hilar node involvement, rupture of cavity during surgery, poor re-expansion, and streptomycin therapy. The type of operation and the extent of the lesions seemed to have no effect on the incidence of fistulization.

F. PEREZ PINA

Bronchogenic Mediastinal Cysts. O. PERÄSALO and M. TURUNEN. *Ann. chir. et gynaec. Fenniae*, 1956, 45: 1–17.

During the period from 1950 through 1955 10 cases of mediastinal bronchogenic cyst, apparently congenital in origin, were encountered and confirmed by resection and histologic examination. In 3 cases the cyst was an incidental finding at mass roentgenographic examination. In the remaining cases roentgenograms were taken as a result of symptoms of compression produced by the cyst, which had caused respiratory infection in 3 patients and varying degrees of pain in the remaining 4 patients.

It is believed that bronchogenic mediastinal cysts are more common than previously believed and are therefore important from the standpoint of differential diagnosis.

M. WEISS

Subcutaneous Rupture of the Bronchus Following Crushing Injury. O. PERÄSALO. *Ann. chir. et gynaec. Fenniae*, 1956, 45: 92–100.

A case is described of traumatic rupture of the left main bronchus following closed injury to the chest incurred in a traffic accident. At the time of diagnosis, approximately three months after the accident, pneumonectomy was deemed advisable in view of the bronchostenosis, atelectasis, and infection.

Though comparatively rare, traumatic bronchial rupture is often fatal due to severe tension pneumothorax and hemothorax. Despite the continuous increase in traffic accidents and the life-saving importance of immediate surgery, diagnosis is still seldom made at the time of injury. Recent experience with such cases indicates that whenever

possible, end-to-end anastamoses should be attempted immediately after the trauma.

M. Weiss

Epidemic Respiratory Tract Infection in a Predominantly Young Military Community in Southern England with Particular Reference to the Incidence and Nature of the Pulmonary Complications. J. Mackay-Dick, J. G. Elliott, and C. H. Jones. *J. Roy. Army Med. Corps*, October, 1955, 101: 292–316 (abstracted in *Bull. Hyg.*, May, 1956, 31: 494).

Among 500 consecutively hospitalized patients during an epidemic of respiratory tract infections in young soldiers, roentgenographic changes in the lung were found in 66. Virologically, influenza A was diagnosed in 25, influenza B in 17, Q fever in one, and psittacosis in 4. Of these 47 cases, 31 had abnormal roentgenograms presenting as opacities of varying size, mostly small and predominantly located in the right and left lower lobes, the middle lobe, and the lingula.

M. Weiss

Primary Pulmonary Vascular Disease with Cor Pulmonale. P. J. Barnard and J. G. A. Davel. *A. M. A. J. Dis. Child.*, August, 1956, 92: 115–125.

Three cases of primary pulmonary vascular disease with segmental development of capillaries in arterial walls and death from cor pulmonale are described. In the first patient, a girl aged seven and one-half years, cor pulmonale was primarily due to holdover of fetal arterial structure with subsequent development of hypertensive arteriosclerosis. Arterial walls had also been replaced segmentally by capillary networks with preservation of smooth muscle between the capillaries. This is thought to be a congenital vascular anomaly not hitherto described.

The other 2 patients were brothers aged six years ten months and ten years, respectively, who died of cor pulmonale due to allergic vasculitis confined to the lungs. This association of lesions in siblings is thought to be unique. They also had lesions in which arterial walls had undergone segmental replacement by capillary networks, but these lesions differed from those of the first case in that smooth muscle had been destroyed. In these 2 cases capillaritis of alveolar walls closely resembling the glomerular capillaritis of acute diffuse Bright's disease was also found.

M. J. Small

Pulmonary Tuberous Sclerosis. A. J. Bruwerm, R. R. Kierland, and H. W. Schmidt. *Am. J. Roentgenol.*, April, 1956, 75: 748–750.

Reports of 14 cases of pulmonary tuberous sclerosis have appeared in the literature. The salient findings are: the development of progressive dyspnea without cough in a patient, usually a woman between twenty and forty years of age; episodes of spontaneous pneumothorax in approximately a third of reported cases; roentgenographic evidence of widespread coarse mottled lung markings, often suggesting multiple cystic disease; other stigmas of tuberous sclerosis usually without mental deficiency. Death usually occurs within a decade after symptoms have started.

Another case is added which, although lacking pathologic confirmation, was presumptively diagnosed as pulmonary tuberous sclerosis because of the association of adenoma sebaceum and subungual fibrosis in the presence of pulmonary changes for which no other explanation could be found. Attention is drawn to the fact that pulmonary tuberous sclerosis usually occurs among adults who are not mentally deficient, but who usually do have other characteristic findings of the disease, such as adenoma sebaceum, periungual and subungual fibromas, renal tumors, intracerebral calcification, and regions of sclerosis in the long bones.

T. H. Noehren

Tuberculosis and Pregnancy. L. M. Rosenbach and C. R. Gangemi. *J. A. M. A.*, July 14, 1956, 161: 1035–1038.

Of 241 pregnancies among 152 patients with reinfection pulmonary tuberculosis, 23 patients had unfavorable progression of disease during the pregnancy and first postpartum year. Of these 23 patients, 3 had adequate medical treatment. Progression occurred only in initially active cases, while all cases of inactive disease remained stable. Of 19 patients who underwent therapeutic abortion, 4 showed progression during the subsequent year; none of them received adequate medical

treatment. Therapeutic abortion does not seem to be indicated when pregnancy occurs in a patient with active tuberculosis.

H. ABELES

Giant Air Cyst(s) as a Sequela of Pulmonary Tuberculosis. J. L. SHEK, J. A. COPE, and G. D. MYERS. *J. Thoracic Surg.*, July, 1956, 32: 96–102.

Six patients are presented who had giant air-containing cystic space in the lung. They all had diagnoses of pulmonary tuberculosis and had been under treatment. The air cysts found on roentgenogram could all be traced from areas of tuberculous infiltration in films taken over a period of time and represented the end-result of continuous resolution and regression of the tuberculous process.

Resections were performed on all of these patients. No histopathologic evidence of tuberculosis could be found in the sections. Were it not for the fact that these cases represent the sequelae of treated tuberculosis, one would have no way of differentiating these cases from those of pneumatocele of other etiology. Since 3 of the 6 patients had pneumonectomies, this lack of any residual tuberculosis deserves special consideration. Although it is understood that the modern antituberculous measures and drugs can resolve a tuberculous process in the lungs, the completeness of the resolution is perhaps not quite appreciated, although it is the exception rather than the rule.

The question of postoperative treatment deserves serious consideration. Believing that tuberculosis is a systemic disease, these patients were treated as any other tuberculous patient who has had a resection. The question, however, is not settled. It is considered possible that the contraction of surrounding tissue and extension of the original tuberculous cavity, which has been sterilized and endothelized by the antituberculous drug, could happen hand in hand with the formation of some of these air cysts in a previously tuberculous patient.

R. E. MACQUIGG

Kartagener's Syndrome in a Newborn Infant. S. J. NICHAMIN. *J. A. M. A.*, July 7, 1956, 161: 966–968.

A newborn infant developed cyanosis and rapid, irregular respiration when thirty-three hours old. In addition, there was a profuse, purulent nasal discharge. Many rales were present over both lung fields. Physical and roentgenographic examinations established the diagnosis of dextrocardia. Roentgenographic examination of the paranasal sinuses at the age of eight days failed to demonstrate clear air spaces. Re-examination at the age of seven months showed complete opacification of the ethmoid and maxillary cells. The sphenoid and frontal cells were as yet unformed. The nasal cavities were completely opacified, possibly due to the presence of nasal polyps. Bronchography revealed a normal bronchial tree. The absence of bronchiectasis may have been due to early vigorous treatment of pulmonary infections with antimicrobials.

H. ABELES

Pulmonary Lymphatic Tributaries of Abdominal Nodes (in Portuguese). S. VIAL. *Rev. paulista de tisiol.* November–December, 1955, 16: 253–259.

Prussian blue was injected into the lymphatic net at the base of each lung in 35 fetuses between the ages of six and nine months according to the method of Rouviere. Lymphatic collecting vessels arising at the base of the lung which were tributaries of abdominal lymph nodes were observed in 4 fetuses on the left side and in one on the right side. These lymph nodes were usually parietal and located in the celiac region. In only one case was there a visceral lymph node of the juxta-cardiac group. These studies would explain the abdominal manifestations of pathologic processes of pulmonary origin without having to invoke retrograde lymphatic flow.

F. PEREZ PINA

Silicosis: The Topographic Relationship of Mineral Deposits to Histologic Structures. P. GROSS, M. WESTRICK, and J. MCNERNEY. *Am. J. Path.*, July–August, 1956, 32: 739–777.

A photographic method for relating insoluble mineral deposits in the lungs to histologic structures has been described. It consists of superimposing a dark field negative, made after treatment of sections, on negatives of stained sections. This results in a composite picture demonstrating the position

of the mineral deposits in relation to histologic structures. Experimental silicosis in rats has been studied along with several cases of human silicosis.

The amount and distribution of mineral in silicotic nodules were found to be highly variable in the experimental animal as well as in the 2 cases studied in humans, ranging from abundance to near absence.

The near absence of demonstrable mineral from silicotic nodules is interpreted as due to demineralization. This demineralization is a manifestation of the lability or mobility of intrapulmonary silica deposits. Other manifestations of this mobility are found in the scattered interstitial extensions of silica deposits peripheral to silicotic nodules as well as in the presence of silica flocs within air spaces situated in proximity to partially demineralized nodules. The causes of demineralization are edema and inflammation. In fact, the most clear cut examples of demineralization are seen in pneumonic regions.

Silica flocs are demonstrable within and upon alveolar walls that show no significant changes in structure. Aggregates of silica are also found in edema fluid.

The demineralization of silicotic nodules and the subsequent redistribution of silica particles to unaffected portions of the lung offer an attractive explanation for the progression of silicosis.

The demineralization of silicotic nodules in association with a removal of liberated silica via the tracheobronchial tree also offers an explanation for the unreliability of the silica content of the lung as a criterion of silicosis.

S. J. HADLEY

Silicosis of the Lymphatic Glands with Special Reference to Changes in the Nerves Caused by Fibrotic Glands (in German). W. HERZOG and F. W. CONRAD. *Arch. f. Gewerbepath. u. Gewerbehyg.*, 1955, 14: 117–128 (abstracted in *Bull. Hyg.*, May, 1956, 31: 542–543).

Lesions found at autopsy are described in cases in which severe silicosis affected the lymphatic glands with resulting damage to surrounding structures. Such silicotic changes in lymphatic glands at the lung roots can affect respiration and circulation when encroachment upon bronchi and blood vessels cause distortion and narrowing.

Illustrations are presented which demonstrate how pressure by and adhesions to these mediastinal glands resulted in injury to the vagus nerve, which caused cardiac arrhythmias and changes in blood pressure, and to the left recurrent laryngeal nerve, which caused paralysis of the left vocal cord. Microscopic examination showed dust cells within the nerves, with characteristic silicotic granulomata.

M. WEISS

Vanadium Dust, Chronic Bronchitis and Possible Risk of Emphysema. S. SJÖBERG. *Acta med. Scandinav.*, 1956, 154: 381–386.

An examination of 36 workers at a factory producing vanadium pentoxide, eight years after initial exposure and more than five years after a previous spirometric examination, revealed that 6 workers still had complaints such as cough, wheeze, dyspnea, and fatigue. Similar subjective complaints were noted in 2 workers with only a short, but heavy, exposure eight years previously. Objectively, only 2 workers were found to have bronchoscopic evidence of slight to moderate bronchitis, and in 2 others a slight to moderate bronchitis was confirmed by study of the biopsied bronchial mucosa.

No evidence was found of pneumoconiosis or pulmonary emphysema. It is concluded that where the possibility of exposure to vanadium pentoxide exists, indications still remain for rigorous application of prophylactic measures and for more frequent periodic medical examinations.

M. WEISS

Pulmonary Changes in Welders: A Report of Three Cases. R. CHARR. *Ann. Int. Med.*, April, 1956, 44: 806–812.

Three welders with respiratory disturbances are reported. The outstanding complaints were dyspnea and cough. The roentgenograms of the lungs were compatible with diffuse fibrosis. The biopsy of the lungs in 2 revealed fibrosis. Inhalation of vaporized bronchodilator drugs gave temporary symptomatic relief. Though it is generally accepted that no functional impairment of the lungs occurs in this condition it would seem reasonable to regard a prolonged exposure to welding fumes

in rare instances as capable of bringing about considerable respiratory disturbance.

T. H. NOEHREN

Retention of Radon Decay Products in Human Lungs. C. JECH. *A. M. A. Arch. Indust. Health*, May, 1956, 13: 475–479.

A method is described for a continuous registration of radon decay products (or other radioactive aerosols) in the exhaled air. By this method it has been established that, after inhalation of air containing decay products of radon, the concentration of these products in the expired air varies largely during the course of an exhalation, dropping from a relatively high initial value to approximately 30 per cent of the inhaled concentration at the end of each normal exhalation, and practically zero during a deep exhalation. This is explained by the large retention efficiency of the deep (capillary) parts of the lungs (Author's summary).

T. H. NOEHREN

Secondary Vascular Changes in the Lungs. M. L. SUSSMAN and T. T. FROST. *Am. J. Roentgenol.*, April, 1956, 75: 758–766.

Seventy-one cases of chronic cor pulmonale examined post mortem were restudied with special reference to the pulmonary vessels. In 67 of these there was associated pulmonary disease. Twenty-four of the 67 cases showed moderate or severe changes in the arterioles consisting of muscular hypertrophy in the media, subendothelial fibrosis, hyalinization, and atheroma. This is in contrast to the finding of simple intimal fibrosis which is "physiologic" and usually is more prominent with advancing age. There was no correlation between these vascular changes and the degree of right ventricular hypertrophy or the severity of the clinical findings. The pathologic changes are most likely secondary, due to the abnormal physiology rather than a cause of it. The right ventricular hypertrophy is ordinarily not demonstrable by roentgenographic examination. Generally there is no progressive enlargement over years of observation unless there is other concomitant disease; however, when enlargement occurs, severe vascular disease is found in the lungs, and there is clinical evidence of repeated cardiac failure.

Attention is called to the use of pulmonary angiography, by which it is possible to obtain some gross information. The difference in the gross appearance of the long, slender, and smoothly dividing vessels of emphysema, compared with the irregularly-arborizing vessels in the mitral lung, is quite striking. There is a striking diminution in the smaller arterial branches when there is severe pulmonary hypertension. The pulmonary angiogram affords, also, a clear impression of the diversion of blood from diseased pulmonary tissue. At this time, the results are probably only of didactic value, but further exploration might be rewarding.

T. H. NOEHREN

Intrathoracic Foreign Body (in Spanish). C. R. PACHECO, E. GONGORA, and A. AMPARAN. *Rev. mex. de tuberc.*, July–August, 1955, 16: 409–415.

A 25-year-old woman presented with hemoptysis. Chest roentgenograms showed a metallic foreign body type of shadow in the left lung field near the hilum. A history of gunshot wound at the age of ten months was obtained, with absolutely no symptoms during the intervening twenty-four years. At operation, a perforation of the apical segment bronchus of the left upper lobe was found. A bullet divided in two fragments was found and excised, together with an adjacent small calcareous mass. The bronchus was sutured and recovery was uneventful.

F. PEREZ PINA

Pulmonary Hypertension Associated with a Patent Ductus Arteriosus. K. E. J. KYLLÖNEN, J. HAKKILA, W. SIPILÄ, and O. KUOSMANEN. *Ann. chir. et gynaec. Fenniae*, 1956, 45: 33–47.

The operative mortality of patients with a patent ductus arteriosus is significantly high in the presence of pulmonary hypertension, even in cases with left to right shunt. This is due to the large size of the ductus itself and to the associated dilatation of the pulmonary artery which cause considerable technical difficulty involving exposure of the operative field and clamping of the blood vessels.

Three cases of patent ductus arteriosus with pulmonary hypertension are reported. In the first case the pulmonary arterial pressure was

only 10 mm. of mercury lower than the aortic pressure. At operation the short wide ductus ruptured unexpectedly during exposure of the great vessels, resulting in a fatality. Histologic examination revealed degeneration of the elastic tissue of the media in the ductus at the rupture site and in the pulmonary artery. In the second case pulmonary arterial and aortic pressures were equal and no left-to-right shunt was found. Consequently surgical therapy was not considered indicated and was not performed. In the third case, in which the pulmonary arterial pressure was 60/30 mm. of mercury and an aortopulmonary shunt was present, surgical closure of the very wide patent ductus arteriosus was effected without complications.

M. Weiss

Encysted Diaphragmatic Pleural Effusion. J. W. Fraser. *Scottish M. J.*, June, 1956, 1: 212–216.

A case of encysted diaphragmatic pleural effusion occurring in a patient with pulmonary tuberculosis is described, in which the roentgenographic features resembled a high diaphragm with a clear costophrenic sulcus. Such a basal or infrapulmonary effusion should be suspected when serial roentgenograms reveal a sudden rise in the diaphragm on one side. Differential diagnosis from other basal conditions which involve the diaphragm, pericardium, lung, pleura, or abdominal organs is aided by use of pneumoperitoneum as a diagnostic procedure, accentuation of the stomach bubble or gas-filled bowel when the lesion is on the left side, a barium meal, special positioning for roentgenographic studies such as right and left lateral horizontal and Trendelenburg positions, and diagnostic aspiration.

M. Weiss

The Diagnosis and Treatment of Constrictive Pericarditis (in Afrikaans). L. F. Malherbe and A. J. Brink. *South African M. J.*, June 2, 1956, 30: 509–514.

The clinical features of 13 patients who had or developed constrictive pericarditis showed considerable variation, depending upon the stage of pericarditis and whether the constriction involved the right or left ventricle. Five of 6 patients first seen with pericardial effusion progressed to the stage of constriction, while the remaining patient died before such a pattern could develop. Tuberculosis as the etiologic factor was proved in 6 of 9 patients in whom adequate sputum and pericardial fluid examinations and gland and pericardial biopsies were performed. In 4 of the 5 patients followed from effusion to constriction, tuberculosis was proved.

Cardiac catheterization was of practical assistance in confirming the diagnosis of constrictive pericarditis, particularly in the early stages. Serial catheterization studies were employed to evaluate postoperative results in the 9 patients undergoing pericardiectomy. Pericardiectomy produced best results when performed in the early period of constriction, while in patients having old, well-established constriction, this operation effected only moderate improvement.

M. Weiss

The Pathology of Honeycomb Lung. A. G. Heppleston. *Thorax*, June, 1956, 11: 77–93.

The diffuse form of the disease has been described previously. The author has encountered many cases in which the disease affected only parts of the lung. Lung tissue from 66 cases was studied, including those of 32 coal workers. Honeycomb lung was the basic cause of death in 14 cases and was partially responsible for death in 6 others. In the remainder, it was an incidental finding of limited extent. The essential change is obliteration, by fibrosis or granulomata, of some of the bronchioles, nonrespiratory and respiratory, together with their subdivisions. Neighboring bronchioles not so affected then undergo compensatory dilatation to form cystic spaces. Secondary valvular obstruction of bronchioles communicating with the cysts is probably responsible for their progressive enlargement. Fibrosis may develop on the basis of organized bronchopneumonia, restricted areas of pulmonary collapse, and certain specific granulomata, including eosinophilic granuloma, sarcoidosis, berylliosis, and tuberculosis after streptomycin therapy. Other associations, which are rare, are giant cell pneumonia, pulmonary leiomyomatosis, and scleroderma.

A. G. Cohen

Experiences with Hemorrhages on a Pulmonary Service, with Special Regard to the

Hemostatic Reptilase (in German). R. Schill. *Wien. klin. Wchnschr.*, July 13, 1956, 68: 576–579.

Pulmonary hemorrhages are classified as: (*a*) slight, (*b*) moderate, (*c*) serious, and (*d*) abundant. The etiology is either diapedesis or arrosion. Treatment consists in: (*a*) rest; (*b*) vasomotor regulation therapy, such as intravenous injection of 5 to 10 ml. of a 1 per cent novocain solution, artificial subcutaneous emphysema, and artificial pneumothorax; (*c*) administration of hemostatica.

For the past one and a half years a new hemostatic "reptilase" has been used. It is made from the dried venom of Brazilian adders, bothraps jaraca, and lachesis atrox. It contains substances similar to thrombin and thrombokinase and is given by subcutaneous, intravenous, or intramuscular injection. Forty-five patients received this preparation. In most cases the hemorrhages stopped quickly.

G. C. Leiner

Reflex Pulmonary Atelectasis in Cancer of the Esophagus (in Spanish). C. Stajano. *Torax*, September, 1955, 4: 190–193.

Two patients with proved carcinoma of the esophagus developed clinical and roentgenographic signs of atelectasis. In both cases clinically, an esophago-tracheal fistula was suspected as an etiologic factor. However, at autopsy the tracheal and bronchial lumina were completely patent and no fistulas were present. Large lymph nodes with tumor metastases were found in both instances in close approximation to the bronchi but not compromising the lumen. The lungs showed consolidation with an organizing type of exudate and granulation tissue in the "atelectatic" areas. The authors postulate that the pulmonary changes are the result of reflex pulmonary fluid and cellular alveolar exudation, with the initiating reflexogenous zone in the parabronchial esophageal area related to the presence of the tumor tissue.

F. Perez Pina

Localized "Alveolar Cell" Tumour with Bronchial Involvement. W. J. Hanbury and I. M. Hill. *Thorax*, June, 1956, 11: 135–140.

Previous reports of cases of alveolar cell tumor total 217. An additional case is reported which is of particular interest because of its unusual involvement of small bronchi and bronchioles. A left hilar mass with an anterior segmental lesion of the upper lobe was found in a routine film of a 63-year-old female. Bronchoscopy was negative. A left upper lobectomy was done. There was no apparent involvement of the hilar nodes. Histologically, the structure of most of the tumor showed a characteristic "alveolar cell" pattern. In many of the bronchioles the normal epithelium was replaced by clear-celled epithelium of the tumor type. This led to difficulties in precise classification as an alveolar cell tumor or a peripheral bronchogenic carcinoma.

A. G. Cohen

Occurrence of Metastasis of Bronchogenic Carcinoma to Bone. H. Feld and R. G. Olivetti. *Am. J. Roentgenol.*, July, 1956, 76: 81–87.

A case of bronchogenic carcinoma (columnar cell, mucin forming) with osteoblastic metastases to the spine is presented.

T. H. Noehren

Carcinoma of the Lung (in Portuguese). F. Paulino and F. Pernambuco. *Rev. brasil. de tubere.*, October–December, 1955, 24: 1019–1034.

Between March, 1949, and June, 1955, 110 consecutive patients with carcinoma of the lung have been studied, of whom 101 were males and 9 females. Sixty-nine per cent were between fifty-one and seventy years old, 20 per cent between thirty-one and fifty, one patient was nineteen, and 2 were more than eighty. The initial symptoms were those of any other pulmonary disease, namely cough, bloody sputum, chest pain, dyspnea, hoarseness, weight loss, hemoptysis, and weakness. Only 12.7 per cent of the patients sought medical advice within one month of the onset of symptoms. Fifty per cent sought advice within one to six months, and the remainder waited more than six months before seeking medical advice. In 45 cases, surgery was considered contraindicated for the following reasons: distant metastases, 12; mediastinal involvement, 10; cardiovascular insufficiency, 6; cachexia, 6; bronchoscopic signs, 5; pleural effusion with positive cytology, 4; and respiratory insuffi-

ciency, 2. In the 57 cases operated upon, the results were as follows: 29 pneumonectomies with 2 deaths; 6 lobectomies with one death; 22 thoracotomies with one death. There have been 11 surviving patients without signs of tumor, of whom 2 have lived more than five years and are apparently well. The others have been followed for a shorter period.

F. Perez Pina

Scleroderma (Progressive Systemic Sclerosis) Associated with Cancer of the Lung: Brief Review and Report of a Case. S. M. Jonsson and J. M. Houser. *New England J. Med.*, August 30, 1956, 255: 413–416.

An extensive case of scleroderma in a 32-year-old woman and the development of fatal adenocarcinoma of the lung is reported. In this case the scleroderma had unquestionably existed for ten years before any signs of the rapidly growing lung cancer.

Other reports of cancer associated with scleroderma, dermatomyositis, and lupus erythematosus are cited, together with improvement in the collagen disease after treatment of the neoplasm.

Although there is no uniformity in the type of tumors associated with the collagen diseases, they seem to occur more frequently in this group of patients than in other people of the same age. Therefore, the coexistence or a future development of a malignant tumor should always be considered in patients with collagen diseases.

M. J. Small

Tumours of the Diaphragm. F. Nicholson and R. Whitehead. *Brit. J. Surg.*, May, 1956, 43: 633–637.

The authors report the case of an eleven-year-old girl with an undifferentiated malignant tumor in the diaphragm. The child died fifteen months later; no autopsy was obtained. A list of 44 primary diaphragmatic tumors is given.

E. E. Benzier

Pancoast Tumor. W. M. Chardack and J. D. MacCallum. *J. Thoracic Surg.*, May, 1956, 31: 535–542.

The prevailing concept that the Pancoast syndrome signifies inoperability and incurability should be reconsidered in the light of the case presented with five-year follow-up without evidence of recurrence. Any unexplained, persistent, neuritic pain in the upper limb should be thoroughly investigated with the possibility of a Pancoast syndrome-producing lesion in mind. Earliest surgical exploration is justified because the lesion may be benign and not necessarily radiosensitive, and because if it is malignant it may be resectable and possibly be curable. If it is not resectable, important palliative benefits may be achieved by decompression in an otherwise extremely distressing type of tumor.

Since their original communication in 1953, the authors performed incomplete removal of a Pancoast tumor in 3 additional cases. One patient died a few months after operation; but in 2 still under observation radiotherapy was directed to the remaining small and unresectable portions of the tumor, and palliation has been remarkable.

R. E. MacQuigg

Late Tuberculous Adenopathy of the Mediastinum in the Allergic Adult. A Study of Eleven Cases (in French). L. Justin-Besancon, A. Mayer, J. Chretian, and C. Tison. *Semaine d. hôp. Paris*, June 22, 1956, 32: 2189–2197.

Eleven cases of late tuberculous adenopathy located in or near the mediastinum were the subject of this study.

In certain cases of adenopathy limited to the chest and having the appearance of a tumor the diagnosis could only be established after surgical intervention and examination of the specimen. More frequently the diagnosis was made by roentgenogram in cases that showed parenchymal involvement or in which superficial adenopathy was also present.

The diagnosis made by roentgenogram should be confirmed by biopsy of a peripheral lymph node, by transbronchial puncture biopsy of a mediastinal lymph node, or by biopsy of the bronchial mucous membrane in front of the adenopathy.

The differential diagnosis should first rule out bronchogenic carcinoma and Hodgkin's disease, then consider a late primary infection in an adult, or sarcoidosis.

Late mediastinal tuberculosis may also represent, in certain cases, a reactivation of

old foci—reactivated adenopathy persistent from an old primary infection.

E. LYON

Wegener's Granulomatosis. P. O. LEGGAT and E. W. WALTON. *Thorax*, June, 1956, 11: 94–100.

Wegener's granulomatosis is characterized by giant cell granulomatous lesions of the upper air passages or respiratory tract with diffuse necrotizing angiitis and glomerulonephritis. These cases represent a group separable by the nature of the tissue reaction from the more usual forms of polyarteritis nodosa. Twenty-two cases have previously been reported. To these, the authors add 4 more. Each of these patients died and displayed at necropsy the characteristic lesions of Wegener's granulomatosis. These were giant cell granulomatous ulcerations of the upper air passages, necrotizing giant cell granulomata in the lungs and bronchi, diffuse necrotizing arteritis, and a well-marked renal lesion consisting of focal fibroid degeneration and thrombosis of loops of the glomerular tufts with, frequently, epithelial crescent formation, and periglomerular granulomata. The disease is most common in the fourth and fifth decades. The first symptoms are usually referable to some part of the respiratory tract. Other features noted are painful swollen joints, hemoptysis, epistaxis, chest pain usually of a pleuritic nature, fever, productive cough with purulent sputum, wasting orchitis, and the silent development of saddle nose. As the disease progresses, the pulmonary lesions extend and may break down into multiple cavities. Albuminuria may appear late in the course. After a brief course, usually of less than six months, death occurs, usually in uremia. No effective treatment has been discovered. The etiology is unknown.

A. G. COHEN

Emboli of Cerebral Tissue in the Lungs Following Severe Head Injuries. J. B. MCMILLAN. *Am. J. Path.*, May–June, 1956, 32: 405–415.

Reported cases of emboli of brain tissue in the lungs are few. In a series of 213 complete autopsies performed on patients with head injury from 1937 to 1955, 4 cases were discovered. All 4 cases were in association with skull fractures and laceration of brain substance. Glial cells were identifiable in all cases. There were multiple emboli in each case. In no instance was there an opportunity to discover whether this embolization contributed to the death of the patient.

S. J. HADLEY

Childhood Pneumonia, Including Pertussis Pneumonia, and Bronchiectasis. A. BIERING. *Acta paediat.*, July, 1956, 45: 348–351.

Two groups of patients were studied in an effort to determine the frequency of bronchiectasis as a sequel to certain childhood illnesses. The first group consisted of 85 patients who had been hospitalized in 1938 with pneumonia when less than the age of one year. All cases of pneumonia were substantiated by roentgenographic examinations. From questionnaires sent out nine years later, 26 were suspect and selected for further examination. In none was there evidence of bronchiectasis by clinical, stethoscopic, or roentgenographic examination. The second study consisted of a group of 66 who had bronchitis or pneumonia in a group of 768 who were treated for pertussis in 1938 and 1939. Among these were 2 who had a suggestive history of bronchiectasis nine years later. One had a negative bronchogram; the other showed classical bronchiectasis.

S. J. HADLEY

Atypical Pneumonia in an Infant: Association with APC Virus Infection. G. STERNER. *Acta paediat.*, July, 1956, 45: 449–452.

It has been suggested, but not proved, that the APC group of viruses could be responsible for cold-agglutinin negative, primary atypical pneumonia. A case is presented here of an eight-month-old girl who developed a severe pneumonia while in the hospital. No bacterial agent was isolated and response to antimicrobials was uncertain. APC virus type 7 was isolated from the nasopharynx and the feces. There was a sixteen-fold rise in the complement-fixation test on the twenty-first day. Neutralizing antibody also appeared. Since the patient's serum was known to contain no antibody both before her illness and during the acute phase, the association of the virus with the illness seems more than incidental.

S. J. HADLEY

Lipoid (Mineral Oil) Pneumonia and Cor Pulmonale Due to Cardiospasm. I. Steinberg and N. Finby. *Am. J. Roentgenol.*, July, 1956, 76: 108–114.

In the case reported, surgery failed to alleviate the cardiospasm. Aspiration of mineral oil over the ensuing two-year period caused an undiagnosed lipoid pneumonia, aggravation of respiratory insufficiency, cor pulmonale, and death.

T. H. Noehren

Friedländer's Pneumonia. R. B. Holmes. *Am. J. Roentgenol.*, April, 1956, 75: 728–745.

The clinical and roentgenographic features of 19 cases of acute and one case of chronic Friedländer's pneumonia are described and discussed. The pathology is reviewed. The average acute case occurs in an elderly male, frequently an alcoholic, with a history of chronic debilitating disease. The right upper lobe is the favorite site of the consolidation, which may involve less than a segment or the entire lobe. Early abscess formation and downward bulging of the adjacent fissures frequently occur. Early diagnosis of acute cases is imperative so that prompt administration of the correct antimicrobial drugs may be instituted. Streptomycin is the drug of choice, but chlortetracycline and chloramphenicol have been used with success. Most patients survive the acute pneumonia and pass into the chronic stage. This is characterized by fibrosis and cavity formation, and the tendency to exacerbations of acute pneumonia. It is of prime importance to consider the possibility of chronic Friedländer's pneumonia in all instances of pulmonary fibrosis and cavitation, particularly in the upper lobe, as such a case may be erroneously diagnosed and treated as tuberculosis (Author's summary).

T. H. Noehren

An Evaluation of Twenty-Two Patients with Acute and Chronic Pulmonary Infection with Friedländer's Bacillus. B. J. Limson, M. J. Romansky, and J. G. Shea. *Ann. Int. Med.*, June, 1956, 44: 1070–1081.

During a 2½-year period, 22 patients with acute and chronic pulmonary infection with Friedländer's bacillus were treated. Nine of the 13 patients with acute Friedländer's pneumonia died. One of the 9 in the chronic group died. A combination of streptomycin and one of the tetracycline group or chloramphenicol may be the treatment of choice in acute Friedländer's pneumonia, and immediate therapy should be initiated on the slightest suspicion of this condition. The data indicated that the antimicrobials used are generally quite effective, but other factors contribute to the poor response to therapy. The tendency of patients in the lower economic group is to delay admission to the hospital, thereby allowing rapid progression of the disease and preventing early diagnosis and therapy. The patients who died were all alcoholics and some were in delirium tremens. Lowered host resistance was obvious. Their leukocyte counts were low, and all but 2 had bacteremia. The presence of leukopenia and bacteremia is of serious prognostic significance. It is imperative that there be a high index of suspicion for Friedländer's pneumonia among alcoholics showing evidence of severe pulmonary infection. Immediate therapy should be directed against Friedländer's bacillus pending identification of this microorganism. Gram stain of the sputum should be done immediately on admission.

T. H. Noehren

Pulmonary Manifestations of Staphylococcal Infections (in Spanish). R. Gonzalez Puig and D. Fonseca. *Torax*, September, 1955, 4: 194–204.

Eight cases of staphylococcemia with pulmonary involvement are presented. The clinical and roentgenographic manifestations are quite variable. Pulmonary symptoms and signs may be meager, but roentgenographic examination should be done in all cases, since this will sometimes reveal unsuspected findings ranging from one to many nodular or cystic lesions to pleural effusions or pneumonic consolidation. There were 6 females and 2 males in the series. In 5 of the women, the genital tract was the portal of entry. In the other female and the 2 males, the primary focus was a facial furuncle. There were 4 deaths; one patient had a serious residual valvular lesion. All cases were treated with antimicrobials. Two of the early cases occurred during the sulfonamide era and one death was among these patients. Three patients were treated with penicillin only, with survival in all 3. The 3 last patients were treated with presumably adequate doses of broad-spectrum antimicrobials to which the

staphylococcus was susceptible *in vitro*, but they nevertheless died.

F. Perez Pina

Psittacosis Complicated by Staphylococcal Pneumonia. W. R. Warren and E. L. Kehoe. *Ann. Int. Med.*, April, 1956, 44: 796–806.

A case of psittacosis is presented in which survival occurred in spite of the severity of the disease, the patient's age (forty-one), and the presence of three potentially fatal complications: severe nasal and periorbital cellulitis due to *Staphylococcus aureus*, severe bilateral staphylococcal pneumonia with multiple abscess formation and massive cavitation, and staphylococcal bacteremia. The favorable outcome was considered to be largely attributable to prolonged administration of erythromycin, the only antimicrobial to which the staphylococci showed clinical susceptibility.

T. H. Noehren

Progressive Pulmonary Histoplasmosis with Bilateral Resection and Chemotherapy. C. R. Howson, L. A. Brewer, W. H. Oatway, Jr., and E. A. Rouff. *Ann. Int. Med.*, May, 1956, 44: 985–993.

A case is reported of progressive pulmonary histoplasmosis closely resembling reinfection type of cavitary tuberculosis, with an acute pneumonic spread and cavity formation in the contralateral lung. Surgical excision of the more recently infected tissue was followed by some dissemination of the process in both lungs, but later excision of involved tissue in the lungs first infected was uncomplicated, and the patient is apparently free of active disease. The appearance of this film after a short course of antituberculous medication was suggestive, though not conclusive, that it exerted a deleterious effect on the lesions. While the results of the administration of the MRD-112 daily for a period of ninety days cannot be said to be conclusive, it was believed that it probably had a beneficial effect on the histoplasmosis lesions, as evidenced by the rapid improvement in the disseminated lesions resulting from the first operation, a slight diminution in the size of the cavity in the left apex prior to the second operation, and the much greater difficulty in culturing the organisms in the pulmonary tissue removed at the second operation (Authors' summary).

T. H. Noehren

Chronic Benign Residuals of Coccidioidomycosis. N. M. Hensler and E. A. Cleve. *A. M. A. Arch. Int. Med.*, July, 1956, 90: 61–70.

"Chronic benign residual" is used to describe any pulmonary lesion persisting three or more months after acute pulmonary coccidioidomycosis or otherwise demonstrated to be coccidioidal in origin without evidence of dissemination. Failure to recognize these lesions often results in making an incorrect diagnosis of tuberculosis or other serious pulmonary disease. This report is based on 50 cases. Several cases are described in detail. History, skin test, serologic studies, and culture of *Coccidioides immitis* are necessary for diagnosis. Chronic benign pulmonary residuals of coccidioidomycosis are asymptomatic. Noncavitary lesions remain stationary or regress; the nodular type may even calcify. In these cases if a definite diagnosis can be established, no therapy is thought necessary. If a cavity is present, there is no uniform opinion as to treatment. Surgery was performed in 14 cases in this series. Nine nodular lesions were excised for diagnostic purposes, without complications. Since dissemination will generally occur within six months after acute disease, and is frequently accompanied by a high complement-fixation titer, excisional therapy should never be considered within this time interval or without obtaining a serologic titer.

E. E. Benzier

Late Results of Resection for Tuberculosis of the Upper Lobe. E. Hoffman. *Thorax*, June, 1956, 11: 160–162.

A total of 112 patients with pulmonary tuberculosis underwent resection of the upper lobe between 1949 and 1954. Of these, 100 have been followed from one to six years. Of the other 12 patients, 4 died within the first three postoperative months and one, ten months after operation; the other 7 were lost to follow-up. The extent of resection was: local wedge in 11 cases, segmental (multiple or single) in 36, lobar in 51, and lobar and segmental in 2. The indications for resection were circumscribed caseous foci in 27 and fibrocaseous disease in 73. Included were 17 cases with failed artificial pneumothorax and 17 with failed thoracoplasty. There were 19 patients with evident bilateral disease. Seven were operated upon on

both sides, including 4 bilateral resections, and 3 with a thoracoplasty on one side and a resection on the other. The results of resection in patients with bilateral disease were not good. All patients received chemotherapy. There were 78 patients with sputum positive for tubercle bacilli. Of these, 6 are persistently positive; 3 of these have been operated upon less than a year previously. In the early follow-up (within one year) there was reactivation or spread in 8 cases, controlled with further treatment in 4. In the late follow-up, there was only one persistent reactivation. There were 9 cases of bronchopleural fistula, of which 6 were controlled by thoracoplasty. Respiratory function in 76 cases has been considered good, in 21 moderate, and in 3 poor. Of 62 patients operated upon more than two years before, 45 returned to full-time work and 3 to part-time work.

A. G. COHEN

Management of the Postresection Space in Tuberculosis. J. W. BELL. *J. Thoracic Surg.*, May, 1956, 31: 580–592.

A series of 29 cases of preresection thoracoplasty, 25 cases of pleural tent, and 25 of postresection thoracoplasty is presented. Emphasis is placed on the physiologic handicap of the preresection and concomitant thoracoplasty and the lack of definite pathologic or clinical evidence that adjunctive thoracoplasty makes resection safer for a patient, at least under present circumstances.

The impression that reduction in the size of the hemithorax should benefit patients with obstructive or compensatory emphysema is not tenable. These are the patients who are most vulnerable to any interference with the bellows mechanism of thorax and diaphragm, which is important to the cough mechanism. Prophylactic thoracoplasty is nebulous, but a thoracoplasty for the purpose of closing a fistula or empyema space is therapeutic.

The plea is therefore made that, if a patient is to be given adjunctive thoracoplasty, there must be better testimony than is now available that it is worth the price paid by the patient. Attention is called to the extreme unpredictability of the residual necrotic focus. Reactivation has occurred under a variety of conditions. There is no information in previous reports which establishes a cause and effect relationship of overdistention on small residual lesions and the remaining lobe.

R. E. MACQUIGG

Ethyl Alcohol Lavage Treatment of Tuberculous Empyema. K. G. S. NAIR, I. G. EPSTEIN, F. LO BAIDO, and J. SCHLOSS. *Sea View Hosp. Bull.*, July, 1956, 16: 52–61.

Despite the rapid advances in chemotherapy and surgical technique, thoracic empyema is still one of the most difficult diseases to combat successfully. It has long been recognized that the basic treatment of empyema is sterilization and obliteration of the empyema space. Six cases of thoracic empyema were treated with ethyl alcohol lavage. Thirty per cent solution is made by adding distilled water to absolute ethyl alcohol. No appreciable side-effects were noticed with this type of treatment. Of the 6 patients treated with irrigation and instillation of ethyl alcohol, sterilization of the pleural space with complete re-expansion of the lung took place in 3 cases. Empyema was controlled in 2 postoperative patients. In one, complete control was not achieved because of complicating tuberculous osteomyelitis of the rib.

E. E. BENZIER

Chemical Control of Pulmonary Ventilation: I. The Physiology of the Chemoreceptors. H. WINTERSTEIN. *New England J. Med.*, August 2, 1956, 255: 216–223.

In the organism there are two tasks the solution of which is of the greatest importance. In the first place, the acid-base equilibrium must be kept constant; second, the oxygen supply must be adequate. The chemoreceptors provide the finer adjustment of both. But the second task is immediately vital, in the sense that an insufficient oxygen supply leads directly to death. One finds, therefore, that nature has endowed these peripheral sensory organs with special sensitivity to changes of oxygen pressure, so that they are able to compensate for any disturbance long before the centers have been affected. However, this compensation is connected with alterations in the acid-base equilibrium. This fact results in an extraordinarily complicated interaction of peripheral and central regulatory mechanism (Author's summary).

M. J. SMALL

Chemical Control of Pulmonary Ventilation: II. Hypoxia and Respiratory Acclimatization. H. WINTERSTEIN. *New England J. Med.*, August 9, 1956, 255: 272–278.

The physicochemical processes that take place during hypoxia and acclimatization are discussed. Changes of oxygen pressure, of carbon dioxide pressure, and of pH interact in a complex and interlocking way. At high altitudes there is an increase of sensitivity not only to carbon dioxide but also to lack of oxygen. It can be shown that if an unacclimatized person and an acclimatized person are suddenly subjected to strong oxygen lack, the increase of ventilation in the latter is much greater than that in the former. The greater the increase of pulmonary ventilation, the greater the possibility of enduring lack of oxygen, which is the most important factor for those who wish to climb to very high altitudes. In this case it is clear that one cannot be concerned with acclimatization of the center, but with an effect of the glomera (the carotid and aortic bodies), since these are the only structures that react to sudden oxygen lack. The excitation of the glomera also depends on the pH present in them.

M. J. SMALL

Chemical Control of Pulmonary Ventilation: III. The "Reaction Theory" of Respiratory Control. H. WINTERSTEIN. *New England J. Med.*, August 16, 1956, 255: 331–337.

The various ways of chemical control of respiration are reduced to a single basis—namely, the cH in the responsible structures.

M. J. SMALL

Mechanics of Glossopharyngeal Breathing. C. R. COLLIER, C. W. DAIL, and J. E. AFFELDT. *J. Appl. Physiol.*, May, 1956, 8: 580–584.

Glossopharyngeal breathing is a useful method of pumping air into the lungs of patients with respiratory muscle paralysis due to poliomyelitis. During inspiration, air is pumped into the lungs by means of the tongue, jaws, cheeks, and pharynx, the larynx acting as an intermittent valve to hold each volume increment. The expiratory phase is passive. Utilizing glossopharyngeal breathing, the average vital capacity of patients trained in the technique can be increased five times more than the vital capacity recorded without the breathing aid.

The mechanics of glossopharyngeal breathing were studied by recording measurements of volume and air flow, arterial, tracheal, and esophageal pressures in patients with respiratory muscle paralysis due to poliomyelitis. These data indicated that the elastic work of moving the chest wall, diaphragm and abdomen considerably exceeds the work done on the lungs.

With maximal glossopharyngeal breathing effort, high intrathoracic pressures could be generated with concomitant reduction in recorded arterial pressures. This detrimental effect on the circulation can be minimized by limiting tidal volume to less than one liter.

The expiratory flow rates for spontaneous cough were increased more than four times by means of glossopharyngeal breathing.

A. L. L. BELL, JR.

Effect of Oxygen on Exercise Ability in Chronic Respiratory Insufficiency. J. E. COTES and J. C. GILSON. *Lancet*, June 9, 1956, 1: 872–876.

A portable oxygen apparatus, which had been developed for other purposes, was used in the symptomatic treatment of men with chronic respiratory insufficiency. The present study represents an attempt to assess its usefulness. Twenty-nine patients were studied. Exercise ability was measured by the length of time they could walk on a treadmill. Breathing oxygen was found usefully to increase exercise ability in most of the patients. Detailed study on 6 patients indicated that 30 per cent oxygen was almost as useful as 50 and 100 per cent oxygen. The design of the apparatus is discussed in great detail. Its shortcomings are noted and recommendations for improvement are made.

A. G. COHEN

A Study of Respiration in Pulmonary Asbestosis (in French). H. BASTENIER, H. DENOLIN, A. DE COSTER, and M. ENGLERT. *Arch. d. mal. profess.*, 1955, 16: 546–553 (abstracted in *Bull. Hyg.*, May, 1956, 31: 544).

Ventilatory studies were performed in 7 women and 2 men who had been exposed to asbestos dust for eighteen to thirty years and who presented clinical symptoms and roent-

genographic evidence of ground glass densities in both lungs. The vital capacity was definitely reduced but the maximal expiratory volume was normal. Although breathing was satisfactory at rest, dyspnea appeared on exertion in proportion to the extent of pulmonary lesions. These functional changes appeared similar to those encountered in other cases of pneumoconiosis. Emphysema in varying degrees was present but no special strain upon the heart was noted.

M. WEISS

Bronchial Carcinoma. Effect of Radiotherapy on Survival. J. R. BIGNALL. *Lancet*, June 9, 1956, 1: 876–879.

In this report, the survival rate of patients with bronchogenic carcinoma treated by radiotherapy is compared with that of patients who were not so treated. Patients with evidence of extrathoracic metastases and those who lived for less than a month after hospital admission were excluded from the study. Also excluded were 9 who were lost to follow-up. The final number in the radiotherapy group was 207; the number of untreated cases was 215. The radiotherapy group was divided into two subgroups: 114 who received 1,000 to 3,900 r and 93 who received 4,000 r or more. The groups were further divided into those with and without evidence of mediastinal metastases at the time of diagnosis. There were no known important differences among the groups in the distribution of factors known to influence survival.

In the group treated with less than 4,000 r, without metastases, 30 per cent lived more than a year, compared with 20 per cent of the untreated. In the subgroup with metastases, there was a difference of only 6 per cent. In those who were treated with more than 4,000 r, the differences were only slightly greater. In this series, it is unlikely that radiotherapy caused an increase of as much as 10 per cent in the proportion surviving a year after diagnosis or 5 per cent in those living two years, even in the most favorable cases treated with higher doses.

A. G. COHEN

Report Concerning the Therapy of Five Hundred Cases of Cancer of the Lungs. R. GEISSENDORFER. *Langenbecks Archiv*, 1955, 282: 496 (abstracted in *Internat. Abstr. Surg.*, July, 1956, 103: 31).

In the course of five years, 500 patients with cancer of the lungs were treated in the surgical department of the University of Frankfurt. Ninety-four per cent were in the fourth, fifth, sixth, or seventh decade of life. The ratio of male to female patients was 13 to 1. The average duration of the symptoms in the entire series was 8.5 months; in the operable cases, 5 months; and in the inoperable cases, 10 months. Of the diagnostic methods the author puts bronchography in first place and bronchoscopy second. Cytologic examination corroborated the diagnosis in 80 per cent, while in 20 per cent the findings were negative although the subsequent histologic study confirmed the diagnosis of malignancy. Kymographic studies of the esophagus filled with an opaque medium suggested inoperability in 83 per cent of the cases, which subsequently at exploration or post-mortem examination proved to be inoperable. The so-called middle lobe syndrome was found in 10 per cent of the entire series. Among the 500 patients, the lesion was operable in 189, or 37.8 per cent, including 43 patients in whom only a palliative resection could be performed. Whereas the mortality within six weeks after the operation was 14.2 per cent following lobectomy, it rose to 33.5 per cent after pulmonectomy. Palliative pulmonectomy and operations on patients more than sixty-five years of age are included in the statistics. Squamous cell carcinoma was found in 74 per cent of the entire series, microcellular bronchial cancer in 20 per cent, and adenocarcinoma and atypical carcinoma each in 3 per cent. The author concludes from his observations that a radical operation for a nondifferentiated bronchial carcinoma is useless and that middle lobe tumors are very seldom operable. Age up to the eighth decade forms no contraindication to pulmonary resection. Postoperative irradiation is poorly tolerated and does not improve the diagnosis.

E. E. BENZIER

Substernal Thyroid Identified by a Simple Radioiodine (I^{131}) Procedure. I. F. HUMMON and M. F. MAGALOTTI. *Am. J. Roentgenol.*, June, 1956, 75: 1144–1149.

Ten cases are presented to illustrate a superior mediastinal study to identify functioning thyroid. Whether the case is euthyroid or hyperthyroid, substernal I^{131} tracer study has been shown to be valid in establishing or ruling out the presence of functioning substernal thy-

roid. In following the plan outlined for substernal study, the counts are taken at or below the suprasternal notch. In doing so, a rather definite pattern is established which can be compared with the control group. It is believed that there is probably less chance of arriving at an erroneous conclusion with this method of approach than by taking arbitrary counts over the superior mediastinum.

T. H. NOEHREN

Radioactive Colloidal Gold in the Control of Malignant Effusions. J. M. DENNIS, J. B. WORKMAN, and R. E. BAUER. *Am. J. Roentgenol.*, June, 1956, 75: 1124–1128

From an analysis of 58 cases of malignant pleural and peritoneal effusions treated with radioactive colloidal gold several conclusions are drawn: Intracavitary radiogold is of definite benefit in the relief of troublesome malignant effusion. Without careful selection, 62 per cent of the patients treated were rendered free of troublesome fluid accumulation for an average duration of five months. The best results in the management of pleural and peritoneal effusions were obtained in those patients without visible or palpable metastases. Patients with palpable masses or in the terminal stages of illness may develop intestinal obstructive symptoms following intracavitary radiogold therapy. Patients with severe constitutional effects, such as marked weight loss, severe anemia, et cetera, may run a rapid downhill course following intracavitary radiogold therapy. A satisfactory result may occasionally be obtained in the patient with a large palpable mass and malignant effusion by a combination of intracavitary radiogold and external irradiation to the large mass, particularly if the primary tumor is ovarian in origin. The palliative effect of radioactive gold in malignant effusions can be increased by a more careful selection of patients.

T. H. NOEHREN

Radioactive Colloids in Carcinomatous Pleural Effusions (in Spanish). F. E. LEBORGNE. *Torax*, September, 1955, 4: 186–189.

Nineteen patients with pleural effusions due to metastatic carcinoma of the breast have been treated with radioactive colloidal gold. They had required frequent thoracentesis for control of the effusions. In more than 50 per cent of the cases, good results were obtained in that fluid reaccumulation was inhibited. In some advanced cases, the results were excellent. There were no associated painful, local reactions and no fever attributable to the therapy. Radiation sickness, lasting for a few days, was observed in some cases. No hematologic changes were noted. No special care or precautions as regards radiation from the patient or excreta are required, but the administration must be done by trained personnel under carefully controlled conditions.

F. PEREZ PINA

Fifty Years of Progress in Roentgenology of the Chest. W. J. TUDDENHAM. *Am. J. Roentgenol.*, April, 1956, 75: 659–667.

The growth of chest roentgenography from the days of the pioneer radiologists to the present time is traced.

T. H. NOEHREN

The Lordotic Position in Fluoroscopy and Roentgenography of the Chest. B. ZINN and J. MONROE. *Am. J. Roentgenol.*, April, 1956, 75: 682–700.

The additional information obtained by employing the lordotic position in both fluoroscopic and roentgenographic examinations of the chest warrants its more general and frequent use. Examination of the patient in the lordotic position allows a more thorough study not only of the upper part of the chest but also of the middle and lower thirds, and added information is gained concerning the lungs, bronchi, pleurae, heart, great vessels, chest wall, and even the cervical structures. The fundamentals of localization using the posteroanterior and the lordotic pair of roentgenograms of fluoroscopic screen images are outlined and illustrated. The routine posteroanterior film plus a lordotic give much more information concerning the chest than do conventional stereoscopic roentgenograms.

T. H. NOEHREN

A Modification of the Routine Lateral View of the Chest to Permit Visualization of the Superior Mediastinum. W. LENTINO, I. MARCHETTO, and M. H. POPPEL. *Am. J. Roentgenol.*, April, 1956, 75: 767–770.

The inadequacy of roentgenography in the present routine lateral view of the chest is

stressed, and modification which may overcome some of the present limitations is suggested. Standard lateral techniques are defective in that they create a blind spot in the superior mediastinum. The heads of the humeri, the scapulae, and the soft tissues of the shoulders are thrown directly over the superior outlet of the thorax, and all pathologic changes in this region are masked. A technique that has been found to produce results which were satisfactory in a large number of cases is as follows: The patient is positioned in the erect lateral posture and places his hands behind his back, where they are held from behind by an attendant, who clasps the heads of the patient's humeri, and rotates the shoulders backwards, out of the way of the superior mediastinum. An unobstructed view of the superior mediastinum is thereby obtained.

T. H. NOEHREN

Roentgenologic Method for Demonstration of Bronchopulmonary Segments in Fully Expanded Cadaver Lungs *in Situ*. K. Y. CHYNN and L. R. SANTE. *Am. J. Roentgenol.*, April, 1956, 75: 779–784.

Most investigations have dealt with the postmortem study of collapsed lungs out of the thorax in which case all relationships to chest cage and mediastinal structures are lost. The detailed anatomic descriptions of length and diameter of the various bronchi under these circumstances provide little useful information in the roentgenographic interpretation of bronchopulmonary disease. Even in the roentgenographic literature, there are marked differences of opinion as to the location and appearance of the segments in both postero-anterior and lateral view. In view of these limitations and discrepancies, a new method for studying the roentgenographic appearance of bronchopulmonary segments is described.

T. H. NOEHREN

The Current Status of Bronchography with Water-Soluble Media. I. NIKNEJAD, J. R. AURELIUS, D. H. PETERSON, and L. G. RIGLER. *Am. J. Roentgenol.*, April, 1956, 75: 701–719.

The development of bronchographic water-soluble media is traced in a brief historic review. The constituents of various water-soluble media are described, and the biologic effect of these media discussed. Their controversial aspects with regard to the production of granulomatous changes in the lungs are analyzed and the technical aspects of bronchography with water-soluble media are given detailed consideration. It is concluded that the xumbradil viscous B is a safe and satisfactory bronchographic medium. Its use is recommended until other media prove to be superior.

T. H. NOEHREN

Bronchographic Studies After Resection for Pulmonary Tuberculosis. J. E. WALLACE and R. PILLMAN. *Thorax*, June, 1956, 11: 149–159.

The present study had four objectives: (*1*) to determine to what extent and in what anatomic manner the remaining pulmonary segments fill the space after the various types of resection; (*2*) to observe the nature and degree of overdistension by observing the degree of attenuation of the bronchial tree; (*3*) where a space-reducing procedure had been carried out, to consider its success in preventing overdistension; (*4*) to note the occurrence, if any, of kinking or other distortion of the larger bronchi.

Forty-nine cases were studied, including 15 upper lobectomies (unassisted), 6 lower lobectomies, 11 upper lobectomies (assisted by a space-reducing procedure), 10 apico-posterior segmental resections, and 7 miscellaneous. In the cases of unassisted upper lobectomy, the apical segment of the lower lobe and the middle lobe or lingula (if not resected) are the parts of the remaining lung which fill the dead space. The basal segments of the lower lobe are unaffected except in left upper lobectomies where the lingula also has been resected, in which cases the anterior basal segment is displaced upwards and shows distension. In lower lobectomies, the middle lobe or lingula plays the greatest part in filling the dead space, but in no case is overdistension as marked as after upper lobectomies. Overdistension is absent in the case of a raised diaphragm. A space-reducing procedure, accompanying or shortly following an upper lobectomy, does not prevent displacement of the residual lung. When the lobectomy follows a space-reducing procedure, displacement is minimal or absent. However, space reduction does appear largely to prevent distension. In the case of resection of apico-posterior segments of the upper lobe, where the anterior segment is large, it is able to fill the

dead space completely. Where the segment is smaller, the space-filling is assisted by upward movement of the apical segment of the lower lobe and the middle lobe or lingula. Pooling in the resection stump occurred in the lower lobectomies only.

A. G. COHEN

The Compatibility of Bronchography with Water Soluble Contrast Material in Lung Tuberculosis. F. W. GIERHAKE and W. MAASSEN. *Thoraxchir.*, 1955, 3: 219 (abstracted in *Internat. Abstr. Surg.*, July, 1956, 103: 28).

The authors studied the question whether bronchography with water-soluble contrast material (per-abrodil) can cause foreign-body reactions in the lung tissue because of the vehicle base carboxyl methyl cellulose. A series of 54 specimens obtained from lung resections following bronchography was examined histologically. In 48 of these cases the resection had been done for tuberculosis, in 3 for bronchiectasis, in 2 for lung cysts, and in one case for carcinoma. The interval between bronchography and the intervention varied between three days and twenty-eight months. Only in 4 of the 54 cases were small amounts of carboxyl methyl cellulose found in the bronchioles or alveoli. In none of them was a foreign-body reaction demonstrable. The writers conclude that bronchography with water-soluble contrast material can be done safely, even in cases of severe tuberculosis.

E. E. BENZIER

The Value of Bronchography in Diagnosing "Peripheral" Primary Lung Carcinoma. C. L. N. ROBINSON and V. G. PECKAR. *Brit. J. Tuberc.*, July, 1956, 50: 205–209.

The role of bronchoscopy and biopsy in 250 cases has been assessed. Bronchoscopy was "negative" in 37 per cent, 46 per cent, and 82 per cent, respectively, of patients who were inoperable, had pneumonectomy, and had lobectomy. Bronchography has been done on all patients having lesions beyond bronchoscopic vision and has been diagnostic in more than 90 per cent of tumors. The roentgenographic features of obstruction have been: abrupt arrests, whether transverse or oblique, smooth or irregular, concave or convex; rat-tail irregular defects; lateral irregular defects; and a missing branch. Bronchography should be done routinely to supplement bronchoscopy when a peripheral shadow is first seen, in preference to waiting to see if it increases in size. With the advent of Dionosil®, there need be no fear of residues of contrast media confusing later pictures. As Dionosil is expectorated or otherwise eliminated satisfactorily in a few days, it is not necessary to wait as long before operation as previously. With peripheral lung lesions, the bronchogram has been as important a diagnostic aid in confirming or excluding a neoplasm as barium enema would be for colonic lesions beyond the reach of the sigmoidoscope. It is felt that bronchography has supplanted tomography as a means of locating bronchial obstruction.

M. J. SMALL

Mediastinal Pneumography. H. J. ISARD, V. D. BERGELSON, and J. FOREMAN. *Am. J. Roentgenol.*, April, 1956, 75: 771–778.

Pneumomediastinum can be produced safely and easily by the presacral injection of oxygen or carbon dioxide. The normal mediastinal structures can be more clearly demonstrated by gas contrast. Pneumomediastinum proved to be useful in differentiating mediastinal tumors from aneurysm of the aorta in 2 cases. In one of these cases the procedure led to the proper interpretation of a malignant rather than benign neoplasm. The use of mediastinal pneumography in the diagnosis of certain developmental anomalies and pathologic conditions of the mediastinum, heart, and great vessels is suggested.

T. H. NOEHREN

Bi-Axial Roentgenkymography. M. SCHNEIDER and J. CEBALLOS. *Am. J. Roentgenol.*, April, 1956, 75: 785–795.

An essential difference between the expansile pulsation of a vascular mass and the transmitted pulsation of a solid mass is in the inability of the transmitted pulsation to occur in more than one direction at any one time. Thus consider a mass which, on roentgenograms and during fluoroscopy, is seen to lie immediately adjacent to the aorta. If it is an aneurysm, it will show pulsations horizontally and vertically at its margins simultaneously. Expansion and contraction should be demonstrable in any other chosen plane. If, however, the mass is

solid, it should exhibit its transmitted pulsations in one direction only, and almost surely not at a right angle to that direction. If two kymograms are made, one with the grid slits horizontal, the other with the slits vertical, expansile vascular wave forms should be seen in both films, but transmitted pulsations should be seen in only one of the two film records. It is essential to choose that position of the patient which will best show the mass in question against the adjacent radiant lung field; this position is determined during fluoroscopic examination, and is used thereafter for kymography with the grid slits in the vertical and horizontal axes. Roentgenkymography, with the slits vertical, has been used for studies of movements of the thoracic structures, the movements of calcified aortic and mitral valves, and activity of the diaphragm, among other problems.

T. H. NOEHREN

Electrokymography in Cases of Pathological Mediastinal and Hilar Changes. J. LISSNER. *Fortschr. Röntgenstr.*, May, 1956, 84: 526–536.

The possibilities for the use of the electrokymogram in the demonstration and analysis of marginal movements of pathologic mediastinal and hilar processes are discussed. Three cases are reported which illustrate the value of electrokymography in the differential diagnosis of abnormal mediastinal findings.

H. ABELES

Roentgen Findings in a Case of Chronic Melioidosis. C. P. ODERR and J. F. SHAW. *Am. J. Roentgenol.*, July, 1956, 76: 94–97.

Melioidosis is an infection resembling glanders and is caused by a similar organism, the *Malleomyces pseudomallei*. This gram-negative bacillus is also referred to as the *Pfeifferella Whitmore*. It is thought to be transmitted by rats and other animals. Although the acute form of the disease is much more common than the chronic, the only previously reported case in the United States was of the chronic variety. Since there is apparently some difficulty in culturing or recognizing the organism, it is possible that many undiagnosed cases exist.

A case of chronic melioidosis involving the lungs and bones that was followed for nearly six years is presented. The lung lesions were suggestive of tuberculosis or similar chronic disease. Some lesions resolved; others formed cavities. The bone lesions were those of low-grade osteomyelitis without appreciable bony reaction. Although the roentgenographic appearance, per se, does not seem distinctive, the low-grade chronicity, migration, and periodic exacerbations should be suggestive of the disease. When tissue diagnoses of "nonspecific granuloma" are received, melioidosis should be included in the differential diagnostic study. It is possible that, with awareness, the culture and recognition of the organism will not prove difficult, and that the disease will not prove to be as rare as it now seems.

T. H. NOEHREN

Acute Fulminating Histoplasmosis. G. E. FISSEL. *Am. J. Roentgenol.*, July, 1956, 76: 60–63.

Two patients from North Central Pennsylvania with primary histoplasmosis characterized by diffuse nodular densities throughout both lungs are presented. In each case cortisone was started empirically and was followed by striking clinical improvement which was not paralleled by similar improvement in the appearance of the chest roentgenograms.

T. H. NOEHREN

Roentgen Aspects of Intrathoracic Blastomycosis. C. HAWLEY and B. FELSON. *Am. J. Roentgenol.*, April, 1956, 75: 751–757.

Significant intrathoracic roentgenographic abnormalities were encountered in 80 per cent of a series of 25 cases of North American blastomycosis. Relatively few different pulmonary patterns were encountered, the most common of these being diffuse miliary involvement, fibrotic lesions indistinguishable from those of tuberculosis, and homogeneous consolidation. Cavitation and lymphadenopathy were quite infrequent, but pleural involvement was common and bone involvement not rare. The course as indicated by serial roentgenographic studies of the pulmonary lesions was most commonly one of slow progression. No diagnostic roentgenographic features were recognized in this material, although the disproportionate degree of pleural involvement, the occurrence of extrapleural extension, and the demonstration of destructive bone lesions might provide clues to the diagnosis. The presence of a chronic undiagnosed pulmonary process, especially if as-

sociated with granulomatous skin lesions, is an indication for a thorough search for *Blastomyces dermatitidis* (Authors' summary).

T. H. NOEHREN

A Five-Year Assessment of Patients in a Controlled Trial of Streptomycin, Para-Aminosalicylic Acid, and Streptomycin plus Para-Aminosalicylic Acid, in Pulmonary Tuberculosis. W. FOX and I. SUTHERLAND. *Quart. J. Med.*, April, 1956, 25: 221–243.

All of the 166 patients in the Medical Research Council's second controlled clinical trial of chemotherapy in the treatment of pulmonary tuberculosis have now been followed for five years or until death. The patients, who were young adults with acute, bilateral, and progressive pulmonary tuberculosis of recent origin, were treated in hospital for six months, and were allocated at random to a three-month course of chemotherapy, consisting of streptomycin, 1 gm. daily (54 streptomycin patients), or PAS, sodium salt, 20 gm. daily (59 PAS patients), or the combination of the two drugs (53 streptomycin-PAS patients). On entry to the trial the distribution of patients with severe and less severe illness was similar in the three series.

The long-term findings in the three series cannot be attributed solely to the initial course of chemotherapy, because there were also differences between them in subsequent chemotherapy and collapse therapy. The PAS series received the most additional therapy, and the streptomycin series the least.

By the end of five years, 31 per cent of the streptomycin, 36 per cent of the PAS, and 19 per cent of the streptomycin-PAS patients had died; 53 per cent of the streptomycin, 54 per cent of the PAS, and 70 per cent of the streptomycin-PAS patients had arrested or quiescent disease. The benefit to the streptomycin-PAS series was evident throughout the five years. The roentgenographic disadvantage to the PAS series compared with the streptomycin series, which had been noted at the end of six months, was apparently redressed by the subsequent difference in additional treatment. Similarly, the continued satisfactory progress of the streptomycin-PAS series compared with the streptomycin series was probably in part due to the fact that the former received more subsequent treatment.

At the end of two years, in the three treatment series combined, 68 per cent of the 134 surviving patients had no working capacity, and even after five years the proportion was 14 per cent of the 118 survivors. Fourteen per cent of the survivors at five years had cavitation visible on a standard roentgenogram. Thus the survivors still present a considerable medical and social problem.

The outcome of the disease in the streptomycin and PAS series was less favorable in patients who had extensive cavitation, extensive involvement of the lung zones, or high pyrexia on admission to the trial. It was also less favorable in streptomycin and PAS patients who failed to improve roentgenographically, who remained bacteriologically positive at the end of three months, or who developed organisms resistant to streptomycin or to PAS within the first six months. These associations were less close in the streptomycin-PAS series.

A comparison of the five-year progress of the 54 patients initially treated with streptomycin alone in this trial with the 55 like patients treated similarly in the first Medical Research Council trial, shows a considerable benefit to the later series, attributable to more additional chemotherapy and major surgical measures, as well as to a fuller understanding in the second trial of the applications of chemotherapy and surgery (Authors' summary).

A. G. COHEN

Results in Forty Cases of Pleural, Pulmonary, and Lymph Node Tuberculosis Treated with Steroid Therapy in Association with Antimicrobials (in French). Y. ROSE and Y. JAUFFERT. *Poumon*, March, 1956, 12: 223–234.

Forty patients were treated with steroids in combination with triple-drug antituberculous therapy (streptomycin-isoniazid-PAS). In most cases corticotropin was given by intravenous infusion in doses of 5–12 mg. for ten, fifteen, or thirty days; cortisone in daily doses of 50–100 mg.; and hydrocortisone in doses of 40–60 mg. Testosterone, 50 mg. intramuscularly, was always given in association with cortisone. Steroid therapy was always perfectly well tolerated.

Two cases of acute pleurisy with massive effusion showed complete absorption after eleven to fifteen days of oral hydrocortisone or corticotropin, respectively. Two cases of

subacute or chronic pleural effusion showed good absorption of fluid after thirteen infusions of corticotropin in one case, and one month of hydrocortisone in the other. Five pleural effusions following intrapleural pneumonolysis absorbed after a few corticotropin infusions. Five pneumothorax effusions occurring at the end of pneumothorax treatment or after re-expansion showed no response to steroids. In 5 cases of pleural effusion associated with pulmonary tuberculosis there was absorption of fluid after ten to thirty days of steroid therapy.

Three cases of acute pulmonary tuberculosis (miliary tuberculosis and tuberculous pneumonia) showed very good clinical and roentgenographic response with steroids. In 14 cases of severe chronic pulmonary tuberculosis not improved by antimicrobials or intolerant to chemotherapy (7 cases) there were 3 failures; in 6 the results were equivocal; there were 5 definite improvements, 4 of which were spectacular and unexpected. In 2 cases of round homogeneous foci there was one failure; in the other 3, homogeneous foci not influenced by four months of chemotherapy disappeared after 2 courses of steroids of ten to fifteen days. In 7 cases of intolerance to antimicrobials, corticotropin and hydrocortisone permitted the continuation of chemotherapy. In one case of large cervical adenopathy persisting for one year in spite of chemotherapy, a two-week course of corticotropin produced almost complete regression.

V. LEITES

The Effect of Chemotherapy on Pulmonary Tuberculosis in the Central African when Given for a Period of a Year or Longer. A. I. L. TURNBULL. *Central African J. Med.*, September, 1955, 1: 228–234 (abstracted in *Bull. Hyg.*, May, 1956, 31: 509).

Fifty African patients with pulmonary tuberculosis were given chemotherapy for a year or longer and followed for at least eighteen months. Treatment consisted of daily doses of 1 gm. streptomycin, 12 gm. PAS, and 300 mg. isoniazid for periods of five weeks with a rest period of twenty-eight days between courses. Of the 50 patients, 34 were males, the average age was twenty-eight years, 22 had bilateral disease with cavitation, 9 had unilateral disease with cavitation, and 19 had no cavitation. Sputum was positive for acid-fast bacilli by direct examination in 48.

Serial roentgenographic examinations revealed that 46 of the 50 patients improved during the first three months, but the degree of improvement decreased rapidly at the end of each subsequent three-month period. The total number with positive sputum by direct examination at the end of three months was 33; at the end of nine months, 7; and at the end of 12 months, 5 (10 per cent).

The necessity for prolonged treatment is stressed, as is the danger of giving Africans biweekly streptomycin with daily PAS and isoniazid continuously for periods of from three to six months.

M. WEISS

The Treatment of Patients Dying of Pulmonary Tuberculosis with a Combination of Cortisone and Antimicrobials (in French). M. DE ALEMQUER. *Acta tuberc. Scandinav.*, 1955, 31: 356–366 (abstracted in *Bull. Hyg.*, May, 1956, 31: 513).

The adjunctive effects of cortisone in the treatment of a group of patients judged to be dying of pulmonary tuberculosis within a few days were evaluated, using as a control a similar group of patients who were not given cortisone. Both groups received the same specific antimicrobial therapy, consisting of 1 gm. streptomycin, 200 mg. isoniazid, and 500,000 units penicillin every twelve hours, supplemented by oxygen and analeptics. Patients in the cortisone group received cortisone intramuscularly for fifteen days: 300 mg. daily for three days, 200 mg. for three days, 100 mg. for three days, and 50 mg. for six days, a total of 2,100 mg. There were 33 patients, 8 women and 25 men, allocated at random to either group, so that each resulting group appeared to be comparable in age, sex, clinical condition, and extent of disease.

After excluding 6 patients who died within twelve hours of the start of the study, there were 14 patients in the cortisone group and 13 in the control group. Two of the 14 patients in the cortisone group died within thirty days, and of the 13 patients in the control group, 9 died in the same period. This difference was considered statistically significant. An additional patient in the cortisone group died on the fiftieth day and in the control group on the seventy-fifth day. At the time of reporting, the 3 survivors in the control group and the 11 survivors in the cortisone group were out of imme-

diate danger. The cortisone-treated survivors, however, were in better condition than the nontreated patients and there was hope of recovery in some.

No serious effects resulted from either the administration or withdrawal of cortisone. Further studies of this subject are being planned.

M. Weiss

Tebafen in Pulmonary Tuberculosis (in Spanish). P. Purriel and O. Muras. *Toraz*, September, 1955, 4: 173–185.

Tebafen, or GT3, is a combination of isoniazid and nicotine aldehyde thiosemicarbazone in a weight ratio of 5 to 1. It was administered to 30 patients ranging in age from sixteen to forty-seven years. Of these, 15 cases were of acute tuberculous pulmonary processes and 15 were chronic. The duration of treatment was three to seven and one-half months. The dose used was 5 mg. of tebafen per kg. per day in all patients except one who received 2 mg. per kg. per day during the first month. A second patient also received 1 gm. of streptomycin intramuscularly twice weekly.

The results were as follows: (*1*) Body weight: gain, 24; loss, 4; no change, 2. (*2*) Sedimentation rate: normalized, 5; diminished, 15; unchanged, 5; slight rise, one. (*3*) Roentgenograms: Of 22 advanced cases—improved, 18; unchanged, 3; spread, one. Of 5 moderately advanced cases—complete clearing, 2; improved, 2; unchanged, one. Of 3 minimal cases—2 pleurisies reabsorbed; one pulmonary lymphadenopathy greatly improved. Many of these patients (15) had been previously treated with other drugs or with collapse therapy. (*4*) Bacteriology: Originally there were 27 patients positive for acid-fast bacilli and 3 negative. Of the 27 positive, 11 became negative. (*5*) Bacterial susceptibility: This was investigated in only 11 patients remaining positive after three to six months of treatment. Of these, one was susceptible to 0.2 γ of the drug; 4, to 1 γ; 2, to 5 γ; and 4 were susceptible to 10 γ. (*6*) Additional examinations: no change in the urine sugar and albumin. Glycosuria was not aggravated in a diabetic. Hematologic studies showed no changes except for hypochronic anemia in a pregnant patient. In general, the results are considered comparable with those obtainable in other studies with isoniazid alone, except that there appears to be less of a tendency for emergence of resistant bacterial strains, although the number of cases studied is too small for firm conclusions to be drawn.

F. Perez Pina

Large Dose Isoniazid Regimen for Pulmonary Tuberculosis. Effect of Glutamic Acid. Management of Drug Toxicity with Pyridoxine. I. Tchertkoff, C. Adamson, and R. Yilmaz. *Sea View Hosp. Bull.*, July, 1956, 16: 62–79.

Twenty-nine patients among a group of 41 were observed for a minimum of six months; most for a year or more. These pulmonary tuberculosis patients received 14 to 25 mg. of isoniazid per kg. of body weight; the majority, 25 mg. per kg. of body weight. On isoniazid plus 10 to 12 gm. of glutamic acid, 60 per cent developed acute toxic symptoms within forty to sixty days. The patients who did not develop toxic symptoms within a period of three months remained free of toxic symptoms during the whole period of observation. In cases of peripheral neuritis of less than two months' duration, pyridoxine in doses of 100 to 300 mg. was effective in producing a rapid remission of the neuritis, even if isoniazid was continued. Pyridoxine apparently did not interfere with the action of isoniazid. A few of the patients became negative despite prolonged use of pyridoxine. Large doses of isoniazid, 25 mg. per kg. of body weight, given with 100 to 300 mg. of pyridoxine daily produce conversion of sputum and clinical arrest of tuberculosis in approximately 20 per cent of cases of extensive cavitary pulmonary tuberculosis.

E. E. Benzier

Chemotherapeutic Control in Fibronodular Pulmonary Tuberculosis. G. Todd, D. Teare, and W. I. Gordon. *Lancet*, July 7, 1956, 271: 1–4.

The present study deals with 238 consecutive cases submitted to surgical resection. There were 163 males and 75 females. The operations were: segmental resections of various combinations, 178; lobectomies, 58; and pneumonectomies, 2. The immediate postoperative mortality was nil. There were 28 postoperative complications: 11 persistent air spaces (a month after operation), 7 calf-vein thromboses, 2 pulmonary emboli, 2 empyemata, one wound infection, one hemorrhage requiring thoracotomy, one laceration of the main pulmonary

artery, one cerebral thrombosis, and 2 cases in which roentgenography indicated a spread. Each resected specimen was examined shortly after removal; areas of palpable solid disease were incised for smear and culture. Of the 238 cases, 130 were asymptomatic and 106 had no tubercle bacilli at any time before operation. The preoperative treatment was with combinations of streptomycin, isoniazid, and PAS. Most of the patients received a combination of two drugs, but some received all three. An attempt was made to determine any correlation between positive and negative findings in the resected specimen and the length of treatment with a combination of antimicrobials. Altogether, in 105 cases a positive culture was obtained from the resected specimen. From twenty-eight weeks onwards, and on dosages of 100 to 119 gm. of streptomycin, more negative cultures were obtained from the specimens. There was no significant difference, as regards positive smears and cultures from the resected specimens, between those patients who were repeatedly negative before operation and those who were positive. Of the 35 patients showing roentgenographic evidence of calcification, 9 were positive on both smear and culture of the specimen, and one was negative on smear but positive on culture (29 per cent). Of the 77 resected specimens showing calcification, 26 were positive on both smear and culture, and 3 were positive on culture alone (38 per cent). Of the 161 resected specimens showing no calcification, 44 per cent were positive on culture. There was no significant difference between the patients who were positive on smear but negative on culture and those who were negative both on smear and culture as regards length or dosage of preoperative drug treatment. No one combination of drugs was correlated with negative culture. It is concluded that (*1*) the policy of limited resection offers the best method of preventing relapse, (*2*) it is safe to operate after nine weeks' treatment, and (*3*) adequate postoperative chemotherapy should be continued for a year after operation.

A. G. Cohen

NONPULMONARY

Scalene Node Excision. F. E. Foley, P. H. Philbin, J. T. Kilpatrick, and M. O. P. Mansfield. *Surgery*, September, 1956, 40: 546–553.

The anatomy of the area is described and accompanied by pictures. In order to define clearly what is sought in these procedures, it is believed that "scalene node excision" is the terminology of choice. The procedure is indicated in any obscure intrathoracic disease and particularly in the diagnosis of mediastinal enlargements. Fifty excisions were performed. Agreement is expressed with the findings of others that between 30 and 40 per cent of such biopsies will be rewarding. In the hands of the authors it has been the most valuable single diagnostic tool available in establishing the diagnosis of Boeck's sarcoid.

E. E. Benzier

Causal Pathogenesis of Carcinoma of the Larynx with Reference to Tobacco Smoking (in German). H. Blümlein. *Arch. Hyg. (Berl.)*, October, 1955, 139: 349–404 (abstracted in *Bull. Hyg.*, May, 1956, 31: 528).

Since surgery has significantly improved the prognosis of carcinoma of the larynx, mortality figures no longer provide a reliable index of its incidence. It is believed that histologic records provide more reliable figures. On the basis of figures of histologically proved cases of cancer of the larynx, ethmoid, and antrum seen at the ear, nose, and throat clinic of Erlanger University during the period 1925 through 1954, it is concluded (*1*) there has been a real increase in the incidence of carcinoma of the larynx, (*2*) male predominance has also increased, and (*3*) the increase in incidence has principally affected men.

The larynx is viewed as being anatomically and physiologically susceptible to the effects of tobacco smoke, which is considered as the most likely causative agent of carcinoma of the larynx. Data collected since 1948 from 238 male patients with laryngeal cancer and 200 male patients free of such cancer, all aged forty years or more, revealed a marked difference in smoking habits. More of the cancer cases were heavy smokers (95.5 per cent compared with 9.3 per cent) and more inhaled (95 per cent as opposed to 17 per cent). Occupational histories showed a high percentage of employment in iron and other metal trades and in the building industries. It is suggested that industrial dusts and hot air may predispose to the carcinogenic action of tobacco tar.

M. Weiss

Tropical Eosinophilia (Followed for Seven Years). J. J. LEVIN. *Ann. Int. Med.*, June, 1956, 44: 1264–1269.

A case is described of tropical eosinophilia in an American veteran with coexistent filariasis. The importance of arriving at a specific diagnosis is stressed. The efficiency of arsenical therapy in tropical eosinophilia was demonstrated in this case by an asymptomatic follow-up period of more than seven years.

T. H. NOEHREN

Systemic Cryptococcosis Without Central Nervous System Involvement: A Case Report. R. F. WETTINGFELD, E. C. H. SCHMIDT, C. F. NAEGELE, and A. A. DOERNER. *Ann. Int. Med.*, June, 1956, 44: 1259–1264.

A case is described of cryptococcosis involving lung, bone, and subcutaneous tissues, complicated by tuberculosis, and at autopsy presenting two distinct sarcomatous tumors. On the basis of favorable extensive *in vitro* and *in vivo* susceptibility studies with this organism, a therapeutic trial with Circulin®, an antimicrobial, was attempted without success. In spite of the host of agents therapeutically employed against central nervous system cryptococcosis, consisting of over thirty-eight antimicrobial and chemical agents, alkalinization, autogenous vaccine, fever therapy, and radiotherapy, only one patient, treated by bilateral mastoidectomy followed by sulfadiazine and observation for six years, has been considered cured. The efficacy of these drugs in other cases of central nervous system infection has not been reproduced, although improvement in other lesions has been noted. Results of therapy with Actidione®, an antimicrobial, have not been invariably good, but it is the most promising agent used to date. A recent study has shown that combined Actidione and polymyxin B therapy, by virtue of the synergistic effect, was potentially more efficacious and was feasible for human therapy.

T. H. NOEHREN

Early Diagnosis of Bone and Joint Tuberculosis in Children. T. J. MILLS, R. OWEN, and E. H. STRACH. *Lancet*, July 14, 1956, 2: 57–59.

The authors report the investigation of 60 consecutive cases in which early biopsy was done. Cases in which the diagnosis was sufficiently obvious to preclude the need for biopsy were excluded. The type of biopsy was: (*1*) aspiration (either of a joint cavity or an abscess), 26; (*2*) regional lymph node biopsy, 39; (*3*) joint biopsy (synovial membrane), 31; and (*4*) bone biopsy, 11. The series is divided into 3 groups: (*1*) proved tuberculous cases, 35; (*2*) nontuberculous cases, 20; and (*3*) unproved cases, 5. Early biopsy has proved to be an extremely valuable diagnostic tool. All biopsy material must be submitted to careful histologic and bacteriologic examination.

A. G. COHEN

Gastric Tuberculosis Associated with Gastric Carcinoma. N. C. TANNER and B. F. SWYNNERTON. *Brit. J. Surg.*, May, 1956, 43: 573–576.

The stomach is very seldom affected by tuberculosis and this has been attributed to the bactericidal action of hydrochloric acid and pepsin. The most likely explanation of the combination of cancer and tuberculosis in the stomach is that they are instances of secondary tuberculous infection of a gastric cancer. A case report is presented. The possibility of gastric or duodenal tuberculosis should be kept in mind when a gastric or duodenal lesion is found in association with an obvious tuberculous lesion elsewhere. In most such cases the two conditions will be unconnected.

E. E. BENZIER

Tuberculous Polyserositis. R. M. ACHESON. *Quart. J. Med.*, April, 1956, 25: 159–174.

Occasionally, the pleural, pericardial, and peritoneal sacs are all affected by a tuberculous process in the same patient. The proliferative form of tuberculous polyserositis is generally rapidly fatal. The exudative form initially is characterized by large effusions. Later these are resorbed, and fibrotic and adhesive conditions of the serosae develop; thus, constrictive pericarditis ensues. Since Kelly's paper of 1903, in which he merged many fragments, including Pick's *pericarditische pseudolebercirrhose*, into one coherent clinical pattern, only occasional case reports have appeared in the literature.

The author reports the extraordinary case of a girl who was first seen at the age of eleven with pleural effusions, abdominal distension, engorgement of the jugular veins, hepatomegaly, and enlargement of the mediastinal

nodes demonstrated roentgenographically. A tuberculous etiology was proved by culture of the pleural fluid. She grew steadily worse and, after two years, was expected to die shortly. Instead she rallied. The pleural and pericardial effusions resorbed, but the ascites persisted. A recent miliary spread was indicated roentgenographically by the presence of choroidal tubercles and by miliary seeding. In addition, there was a small tuberculous focus in the right lung, and active tuberculosis in both kidneys and in a vertebra. Streptomycin then became available and was used. Intermittent tuberculin injections also were given. Three years after onset, the patient developed intestinal obstruction for which a laparotomy was done. She received streptomycin and tuberculin for nine months and improved steadily during this period. The miliary lesions and the pulmonary focus healed, and the focus in the spine became inactive. Four years after onset, she exhibited the full-blown picture of constrictive pericarditis. A pericardectomy was done with remarkable results. She continued to excrete tubercle bacilli from the left kidney; this organ was removed in the fifth year of the illness. At the end of that year, attacks of biliary colic led to removal of the gall bladder. Since then she has remained well and has led a full, healthy life.

A. G. COHEN

Tuberculosis of the Endometrium. A. M. SUTHERLAND. *J. Obst. & Gynaec. Brit. Emp.*, April, 1956, 63: 161–172.

A review and study of endometrial tuberculosis has been undertaken. The following findings are outstanding:

(*1*) The incidence of tuberculosis found among 5,521 curettage specimens at The Royal Samaritan Hospital for Women in Glasgow was 1.1 per cent. It was fairly common among patients investigated for infertility (5.0 per cent) and functional bleeding in young women (4.0 per cent) and uncommon in those investigated for postmenopausal bleeding (0.1 per cent).

(*2*) Among 200 carefully investigated cases of endometrial tuberculosis a history of definite or probable extragenital tuberculosis was obtained in 111 cases.

(*3*) The average age of these patients was twenty-eight years, the youngest being sixteen and the oldest forty-eight years.

(*4*) Among 177 married patients only 23 gave a previous history of pregnancy.

(*5*) The principal symptoms among these patients are infertility, abdominal pain, profuse and sometimes irregular bleeding, amenorrhea, and vaginal discharge.

(*6*) When examination included chest and abdominal roentgenograms and urine culture for tubercle bacilli, hitherto unsuspected extragenital lesions were discovered in 25 per cent of patients.

(*7*) Tubal insufflation revealed 65 per cent had blocked tubes.

(*8*) Material from curettage was cultured on Dubos-Davis and Löwenstein-Jensen media in 185 cases. Positive results were obtained 141 times. In 120 instances studied the organism was of human origin. Seven of 119 organisms were only partially susceptible to streptomycin: 9 were resistant.

(*9*) Of 38 control (untreated) patients only 3 were well at the end of a year and subsequently.

(*10*) It is believed that surgery should be avoided except (*a*) in menopause or postmenopausal patients without activity elsewhere; (*b*) when adnexal masses develop or increase despite other measures; or (*c*) where uterine bleeding associated with uterine infection delays recovery or when fistulas fail to heal.

(*11*) Using 1 gm. of streptomycin daily for eighty-four days with 16–20 gm. of PAS (137 cases) 19 per cent recurrences occurred. Using 1 gm. of streptomycin for eighty-four days with 200 mg. of isoniazid (53 cases), 8 per cent recurrences were noted. After a second course many remained negative.

(*12*) Although no successful pregnancy has occurred in this group most other symptoms disappeared completely.

S. J. HADLEY

Micro-Electrophoresis on Paper in Tuberculosis. E. BENHAMOU, F. DESTAING, J. PUGLIESE, C. CHICHE, and M. TIMSITT. *Bull. Acad. nat. méd.*, 1955, 139: 156–165 (abstracted in *Bull. Hyg.*, May, 1956, 31: 506).

Results of paper microelectrophoretic studies in various forms of tuberculosis are presented. In acute pulmonary tuberculosis α_2-globulin was elevated in more than 90 per cent of the cases, while albumin was decreased in 60 per cent. In ulcerocaseous pulmonary tuberculosis, there was always an increase in α_2-globulin, a

frequent increase in γ-globulin, and a decrease in albumin and β-lipids. Fibrous pulmonary tuberculosis was characterized by a moderate increase in α_2-globulin, a more frequent increase in γ-globulin, normal albumin, and increased lipids. In tuberculosis associated with diabetes, leprosy, and amyloid disease, where there was hyper-β-globulinemia, the α_2-globulin was also increased. An increase in serum α_2- and γ-globulin and sometimes a fall in globulin or lipids was noted in tuberculous pleurisy, while the pleural fluid had a high protein content, with elevated α_2- and γ-globulin and albumin. Tuberculous meningitis in children was associated with an increase in α_2-globulin in 100 per cent of the cases and of γ-globulin in 50 per cent of the cases. In adults the figures were 100 per cent and 80 per cent, respectively.

It is concluded that paper microelectrophoresis is a valuable aid in the diagnosis of early tuberculosis in its various forms.

M. Weiss

Renal Sarcoidosis. H. Cameron. *J. Clin. Path.*, May, 1956, 9: 136–141.

A case of sarcoidosis is described in which death resulted from renal failure. The renal lesions of sarcoidosis have been described in the past as infiltration by hard tubercles, parenchymal deposit of calcium, or the formation of renal calculi. The present case showed an unusual diffuse form of sarcoid granuloma in the kidney which led to tubular loss and renal failure.

S. J. Hadley

Two Cases of Sarcoidosis Involving the Hypophysis Treated with Corticotrophin and Cortisone. I. Rokstad and J. Dedichen. *Acta endocrinol.*, May, 1956, 22: 1–8.

Two cases are described in which lymph node biopsy, clinical history, and laboratory findings seemed diagnostic of sarcoid. In each, symptoms and laboratory findings also suggested hypophysial deficiency. In each, corticotropin with other drugs was administered. Although there was no objective improvement of the hypopituitarism a marked subjective improvement was observed during and shortly after treatment.

S. J. Hadley

Sarcoid-Like Lesions in Lymph Nodes Draining Carcinoma. R. E. J. Ten Seldam. *M. J. Australia*, June 2, 1956, 1: 916–919.

It is known that leprosy, toxoplasmosis, lymphogranuloma, cat-scratch disease, beryllium, silica, and other agents can produce lesions identical to sarcoid. in spite of this it is still customary to diagnose sarcoidosis in lymph node biopsies when the typical lesions are present in the absence of demonstrable acid-fast bacilli and in the absence of other obvious causes. In the literature there are at least twelve reports of sarcoid-like lesions discovered in lymph nodes draining areas involved with primary carcinoma. This author adds 7 more cases; 4 in which the nodes were adjacent to breast tumors, 2 in cases of primary hepatic duct carcinoma, and one from a tumor of the uterus. Actual sarcoid-like structures inside tumors have also been observed and it is known that they occur in some cases of seminoma and ovarian dysgerminoma. One of the cases reported by Nadel and Ackermann was in a hilar node draining a malignant adenoma of the bronchus. Certainly this information should be borne in mind in the interpretation of scalene-node biopsies in which sarcoid is frequently discovered.

S. J. Hadley

Histoplasmosis: Unraveling the Panamanian Puzzle. J. W. Peabody. *New England J. Med.*, August 30, 1956, 255: 408–413.

The first adult case of disseminated histoplasmosis to be reported from Panama since Darling's classic studies fifty years ago is described. In the light of this and other recent developments one suspects that Panama is no different from other endemic areas where the true prevalence of the disease was, and still is, long in gaining recognition.

The more interesting aspects of the case are discussed with special attention to its apparent evolution from a small primary complex type of pulmonary histoplasmosis—a process now known to be almost invariably benign and inconsequential, instead of fatal as in this case (Author's summary).

M. J. Small

Jaundice Associated with the Administration of Sodium P-Aminosalicylic Acid: Review of the Literature and Report of a Case. W. E.

BELLAMY, JR., H. P. MAUCK, JR., G. R. HENNIGAR, and M. WIGOD. *Ann. Int. Med.*, April, 1956, 44: 764–772.

There have been 27 reported cases of jaundice attributed to the oral administration of para-aminosalicylic acid (PAS or sodium PAS) used in the treatment of tuberculosis. Where sufficient data have been tabulated these 27 cases seem to exhibit certain common characteristics. Prior to the onset of jaundice certain untoward manifestations have regularly occurred. One of these is the abrupt onset of hyperpyrexia. In 24 cases the onset of fever was noted to occur at least three weeks after PAS therapy was started. Twenty-five of the patients developed skin lesions, and this usually occurred a few days after the onset of fever, although in 5 cases the onset of rash occurred on the same day as the fever. The eruption was generally of a morbilliform or maculopapular type. It primarily involved the upper extremities, face, neck, and trunk. In several cases it was generalized. Jaundice developed on the twenty-second day of treatment in one case. All of the remaining patients developed jaundice after the twenty-eighth day of treatment, and the majority after the thirty-fifth day. In one case the onset was three months after therapy was instituted; however, this case was unassociated with fever or rash. There seemed to be no direct correlation between the quantity of drug administered and the onset of symptoms. Blood counts showed a moderate to marked leukocytosis. In most instances this ranged from 10,400 to 32,200, although the leukocyte count was below 10,000 in 4 cases. Eosinophilia was noted in 17 cases.

A case of hepatitis with clinical jaundice developing in a patient with miliary tuberculosis on PAS therapy is presented with autopsy findings.

T. H. NOEHREN

Tuberculous Tenosynovitis of the Hand Treated by Combined Surgery and Chemotherapy. M. FELLANDER. *Acta chir. Scandinav.*, October 8, 1956, 3: 142–150.

Tuberculous tenosynovitis is a fairly uncommon condition. Before the introduction of chemotherapeutic agents against the tubercle bacillus, treatment was mainly surgical with complete removal of the synovial sheath. Between 1950 and 1954, 19 patients were treated with complete operative removal of the diseased tendon sheath combined with chemotherapy. The patients were between nineteen and seventy years old. Three of the patients had no other tuberculous manifestations. In one patient, bone and joint tuberculosis developed one year after the tenosynovitis. The remaining 15 had some form of tuberculosis, usually pulmonary tuberculosis or pleurisy. No recurrences were observed in 14. In one patient arthritis of the wrist developed two years after the operation; otherwise the patients were regarded as healed with a seemingly good result.

E. E. BENZIER

Unilateral Clubbing of the Fingers in a Child with Obstruction of the Subclavian Artery. G. SVARTZ-MALMBERG. *Acta paediat.*, May, 1956, 45: 252–258.

Most commonly, unilateral clubbing is associated with aneurysms in the upper limb arteries. In other cases shoulder dislocations, phlebectasias, and injury to the axillary regions have been associated. Here the authors present the case of a six-year-old girl with a history of recurrent joint swelling and tenderness. She eventually was found to have clubbing of the fingers of her left hand as well as absent pulses of this arm. An underdeveloped left subclavian artery was demonstrated at operation. It is generally believed now that increased flow of blood—hyperoxia and hypernutrition—are the most important factors in the development of clubbing. In this case obstruction to the flow of blood was noted. This may result in little decrease and even an increase in blood flow. A review of the literature, however, demonstrates that a combination of pulselessness and clubbing are extremely rare. It is uncertain what mechanism functioned in this case.

S. J. HADLEY

The Incidence of Splenic Calcifications in Positive Reactors to Histoplasmin and Tuberculin. B. SERVIANSKY and J. SCHWARZ. *Am. J. Roentgenol.*, July, 1956, 76: 53–59.

The results of skin testing subjects with histoplasmin and tuberculin and correlating the findings with the number and type of splenic calcifications indicate that the presence of lamination or of large numbers of calcifica-

tions with or without lamination is usually associated with a positive histoplasmin skin reaction and often with a negative tuberculin reaction. This tends to parallel autopsy studies which show that *Histoplasma capsulatum* is a frequent cause of splenic calcifications in the endemic area of this disease. Due to the frequent loss of skin sensitivity in persons more than forty years of age, the presence of "typical" calcifications may be helpful in answering the question of previous contact with *Histoplasma capsulatum*.

T. H. NOEHREN

Hyperthyroidism Developing During PAS Therapy. S. TANDANHAND and R. BURI. *Brit. M. J.*, August 4, 1956, No. 4987: 281–282.

A case of hyperthyroidism developing on PAS and isoniazid therapy for active pulmonary tuberculosis is reported. Subsequent to the withdrawal of PAS and substitution of streptomycin, the patient regained her former euthyroid state. A hypothetical attempt is made to explain the mechanism.

E. A. RILEY

LABORATORY STUDIES

Mechanism of Softening of Tubercles: IV. Digestion of Caseous Tubercles by a Proteinase from Polymorphonuclear Leucocytes. J. TABACHNICK and C. WEISS. *Arch. Path.*, January, 1956, 61: 76–83.

Firm caseous tubercles excised from rabbit lungs may undergo extensive autolysis *in vitro* without grossly observable liquefaction. Unless one invokes the loss of inhibition or the appearance of activators in the tubercle, it would appear that the enzymes involved in caseous liquefaction originate in or are activated by some agent coming from outside the tubercle. A proteinase was harvested from both normal and tuberculous rabbit leukocytes. It digested approximately 20 per cent of the firm caseous tubercle protein. However, only trypsin, of the proteinases tested, produced a degree of softening (liquefaction) of caseous material similar to that observed *in vivo*.

S. J. HADLEY

Fatty Acids from the Lipides of Non-Virulent Strains of the Tubercle Bacillus. J. CASON, C. F. ALLEN, W. DEACETIS, and G. J. FONKEN. *J. Biol. Chem.*, June, 1956, 220: 893–904.

The fatty acids from the lipids of three lots of tubercle bacillus, strain H37Ra, and one lot of BCG_{178} were examined. In the fatty acids with molecular weights above C_{20} were found sharp differences between these lots of nonvirulent strains of tubercle bacillus and previously examined lots of nonvirulent strains of this organism. In one lot of H37Ra the higher fatty acids consisted entirely of levorotatory acids containing one or more bonds not conjugated with the carboxyl group. Active C_{27}-phthienoic acid was not isolated from the nonvirulent strains used. There were also other differences in the fatty acids from the nonvirulent strains. Saturated levorotatory acids were either absent from the nonvirulent strains or present in very small amounts; in their place occurred higher acids with one or more carbon, carbon double bonds not conjugated with the carboxyl group. This latter type of acid has been found only in small amounts in the virulent strains of tubercle bacillus.

E. SOTO-FIGUEROA

Studies on the Interaction Between Phagocytes and Tubercle Bacilli: I. Observations on the Metabolism of Guinea Pig Leucocytes and the Influence of Phagocytosis. H. STÄHELIN, E. SUTER, and M. L. KARNOVSKY. *J. Exper. Med.*, July, 1956, 104: 121–136.

To study the metabolic fate of phagocytized tubercle bacilli, it is necessary to differentiate between the metabolic activities of the phagocyte and of the tubercle bacilli. This report deals with studies on the energy-yielding metabolism of polymorphonuclear leukocytes (PMN) and of monocytes (MN) from the guinea pig and on factors influencing the metabolic activity of these phagocytes.

Peritoneal exudates were induced in the guinea pig by the injection of a solution of (*1*) sodium caseinate to produce a high concentration of PMN, or (*2*) glycogen to produce a high concentration of MN. Dry weight and total cellular phosphorus of the suspensions were determined as well as total and differential cell counts, and cellular viability. Oxygen uptake and aerobic glycolysis of the phagocytes

were measured in the Warburg apparatus before, during, and after phagocytosis of the attenuated human strain of tubercle bacilli, RIRv.

Total cellular phosphorus was found to be the most suitable criterion for the quantity of leukocytic protoplasm present in the exudates. The respiration of MN was observed to be 90 per cent greater and glycolysis 84 per cent greater than that of PMN. The data suggest that the metabolic activity of cellular exudates is influenced by the proportion of the two cell types. When the environmental concentration of oxygen was reduced to 1 per cent, the respiration of a suspension containing 80 per cent PMN was decreased by 80 per cent, whereas lactic acid production increased by 45 per cent. A decrease in pH of the medium below pH 7.5 brought about reduced respiration, glycolysis, and viability of PMN; suspensions of MN were less susceptible to pH changes. Within an hour after phagocytosis of heat-killed tubercle bacilli, the oxygen consumption of PMN suspensions increased by 60 per cent; of MN suspensions, by 100 per cent. In contrast, lactic production remained unchanged.

C. H. PIERCE

Studies on the Interaction Between Phagocytes and Tubercle Bacilli: II. The Action of Phagocytes upon C^{14}-Labelled Tubercle Bacilli. H. STÄHELIN, M. L. KARNOVSKY, and E. SUTER. *J. Exper. Med.*, July, 1956, 104: 137–150.

The use of tubercle bacilli labeled with radioactive carbon, C^{14}, makes it possible to study (*1*) their metabolism during phagocytosis and (*2*) the enzymatic attack by leukocytes on the bacillary components.

Leukocytes were obtained from guinea pigs in the form of casein or glycogen induced peritoneal exudates. The phagocytic protoplasm was measured in terms of total cellular phosphorus. Various strains of *M. tuberculosis* were radioactively labeled by growth in media into which alpha-C^{14}-glycerol, $CH_3C^{14}OONa$, or $C^{14}O_2$ were incorporated. Other bacteria were grown in the presence of C^{14}-labeled glucose. Respiration was measured in the Warburg apparatus in terms of oxygen uptake and $C^{14}O_2$ production.

The rates of oxygen consumption and $C^{14}O_2$ production of phagocytized living tubercle bacilli were maintained after phagocytosis whereas a decline was observed with *M. phlei*, a saprophytic acid-fast strain, or *B. subtilis* under similar conditions. Leukocytes from normal guinea pigs or from animals previously infected with BCG, RIRv, or Vallee strains of tubercle bacilli were unable to convert the carbon of dead but structurally intact tubercle bacilli to $C^{14}O_2$. In contrast, however, the bacillary breakdown of tubercle bacilli disrupted by supersonic vibration or of *M. phlei* and *B. subtilis* was accomplished by leukocytic action. The resistance of tubercle bacilli to enzymatic attack by leukocytes is not due to a lack of enzymes in the phagocyte, since sonically disrupted tubercle bacilli are converted to carbon dioxide during phagocytosis a degree comparable with that of whole cells of saprophytic mycobacteria or of other bacteria.

C. H. PIERCE

A Modification of Sula's Method for the Cultivation of Tubercle Bacilli from Pleural Fluid. J. C. J. IVES and W. MCCORMICK. *J. Clin. Path.*, May, 1956, 9: 177–178.

The difficulty in culturing tubercle bacilli from pleural fluid suspected of being tuberculous is well known. In this study 100 ml. of pleural fluid from 121 cases was inoculated into 100 ml. of double strength Sula's medium (a defined liquid media containing ascitic fluid). Results were compared with guinea pig inoculation and culture on Löwenstein-Jensen medium. The results were as follows:

Specimens examined	121
Positive	86 (71 per cent)
Guinea pig inoculation	16 (13.2 per cent)
Löwenstein-Jensen culture	26 (21.4 per cent)
Fluid culture	86 (71 per cent)

All specimens positive by guinea pig or Löwenstein were positive on fluid culture. Of the 35 negative specimens only 9 were believed to be tuberculous. Growth was obtained in as short time as ten days and as long as two months, with an average of twenty days. The fluid culture method seems vastly superior.

S. J. HADLEY

The Bromo-Cresol-Purple Medium in the Practical Typing of Tubercle Bacilli (in German). D. STUR. *Acta path. et microbiol. Scandinav.*, 1955, 37: 279–285 (abstracted in *Bull. Hyg.*, May, 1956, 31: 572).

Results are reported of two investigations on the value of the bromo-cresol-purple medium in the typing of strains of tubercle bacilli. Methods originally described by Wagener and Mitscherlich in preparing the medium were strictly followed but the importance of a heavy inoculum of tubercle bacilli on the typing medium and abundant oxygen for the growing organisms after the first two weeks of incubation were stressed.

The first study was performed on 50 stock strains which included tubercle bacilli of human and bovine origin, BCG strains, and saprophytic acid-fast bacilli. Characteristic acidification of the medium after eight weeks of growth on the medium was shown by a series of 20 eugonic human strains, but 10 typical bovine strains failed to do so. No color change was encountered with 3 dysgonic human strains, but 3 eugonic bovine strains, with cultural characteristics similar to the human type, reacted in a fashion typical of bovine strains. A saprophytic acid-fast bacillus with eugonic growth similar to the human bacillus demonstrated only a trace of acidification after eight weeks.

In the second study 320 strains of tubercle bacilli, isolated in the author's laboratory, were cultured on the bromo-cresol-purple medium. A characteristic reaction of human organisms was given by 316 strains, while 4 gave that of the bovine strain.

M. Weiss

Production of Leprous Lesions by *Mycobacterium Leproemurium* Exposed to Heat or to an Antiseptic. M. Naguib, R. F. W. Rees, and J. M. Robson. *J. Path. & Bact.*, April, 1956, 71: 409–420.

Suspensions of *Mycobacterium leproemurium* obtained from rat leproma were heated at 60°C. for fifteen minutes, one hour, and two hours, respectively. Merthiolate in a concentration of 1:10,000 was added to the organisms fifteen minutes before intracorneal inoculation into mice. Untreated suspensions were inoculated as controls. Lesions were first noted in the control mice in approximately three weeks; they developed gradually and spread both locally and systemically. In mice inoculated with either heat-treated or merthiolate-treated bacilli, the lesions developed after a much longer latent period (up to eight months after inoculation) and spread systemically. The administration of isoniazid to animals inoculated with heat-treated bacilli still further delayed the appearance of lesions and also reduced the number of mice in which they developed.

H. J. Henderson

The Application to Tuberculosis of a Technique of Complement Fixation Utilizing Hemolysis at Fifty Per Cent. Comparison of the Obtained Results with Those of Passive Hemagglutination (in French). M. Veron. *Ann. Inst. Pasteur*, June, 1956, 90: 738–749.

The results of complement fixation utilizing a photocolorimetric method with readings at 50 per cent hemolysis (instead of at 100 per cent) were correlated with the results of the Middlebrook-Dubos reaction in approximately 50 cases. In the serums of 8 healthy subjects free of tuberculosis complement-fixation reactions were negative and their level of hemagglutination ranged from 0–1:16.

There were 20 cases of bacteriologically proved tuberculosis: (*1*) Nine cases of human tuberculosis: in 5 of these both reactions were negative; in 2 both reactions were positive without parallelism in the degree of positivity; there were 2 discordant results, hemagglutination being negative and complement fixation positive. (*2*) In 11 cases of bovine tuberculosis with positive tuberculin reactions both reactions were negative in 2, both reactions positive in 8, and discordant in one case (positive hemagglutination and negative complement fixation). (*3*) In 23 cases of experimental tuberculosis the results of hemagglutination and complement fixation were discordant in 8.

These results suggest that the two reactions demonstrate different antibodies.

V. Leites

Observations on Bacterial Physiology. Resistance to Antimicrobials and Enzymatic Activity of Tubercle Bacilli: II. Catalase (in French). J. Desbordes, E. Fournier, and D. Alix. *Ann. Inst. Pasteur*, June, 1956, 90: 783–786.

Catalase activity and bacterial resistance were studied in 162 strains originating from patients under prolonged isoniazid therapy. (*1*) In 88 cases the strains were totally catalase positive and susceptible to isoniazid. (*2*) In 42 cases the strains were totally catalase positive,

but some were resistant to isoniazid. (*3*) In 26 cases the strains were catalase negative and resistant to isoniazid. (*4*) In 6 cases the strains were catalase negative and susceptible to isoniazid. The first and third groups (114 of 162) are in accord with the findings of Middlebrook and collaborators. The second group (42 of 162) corresponds to a mixture of bacilli, some isoniazid susceptible and catalase positive, others isoniazid resistant and catalase negative.

V. LEITES

The Effect of Isonicothydrazone of Meta-Sulfobenzaldehyde (605 G) on Experimental Tuberculosis of Guinea Pigs: II. After Inoculation of Streptomycin-Resistant Bacilli (in French). A. LUTZ and M. A. WITZ. *Ann. Inst. Pasteur*, January, 1956, 90: 34–38.

Streptomycin-resistant tubercle bacilli were inoculated into 135 guinea pigs. On the thirtieth day, 8 animals were killed to assess the extent of pretreatment lesions; 108 guinea pigs received sulfoniazide in varying doses orally, subcutaneously, or both. One group remained untreated.

The tuberculosis index of untreated controls was 86.17. Groups treated with subcutaneous injections three times weekly showed no diminution of their tuberculosis index. Animals treated daily with 5 mg. per kg. orally, 8 mg. per kg. orally, 5 mg. per kg. orally plus 4.8 mg. per kg. subcutaneously three times a week, and 5 mg. per kg. orally plus 9 mg. per kg. subcutaneously three times a week showed the following tuberculosis index: 28.48, 6.6, 14.4, 14.6.

V. LEITES

Reversible Changes in the Susceptibility of Mice to Bacterial Infections: I. Changes Brought About by Injection of Pertussis Vaccine or of Bacterial Endotoxins. R. J. DUBOS and R. W. SCHAEDLER. *J. Exper. Med.*, July, 1956, 104: 53–65.

Mice were injected intraperitoneally with one of the following bacterial products having endotoxin activity: pertussis vaccine, a suspension of heat-killed cells of *Klebsiella pneumoniae* (type C), or a purified lipopolysaccharide prepared from cultures of *Salmonella typhosa*.

Following treatment with either one of these materials, the animals were infected intravenously with virulent cultures of coagulase-positive staphylococci, with bovine tubercle bacilli, or Friedländer bacilli.

The effect of treatment with endotoxin materials on resistance to Friedländer bacilli, staphylococci, or tubercle bacilli was estimated by observing the mortality rates in infected animals, and by determining quantitatively the numbers of living bacteria in the organs at different periods of time after infection.

It was found that mice receiving the infective dose of virulent culture a few hours after treatment with the endotoxin material were usually more susceptible to infection than were untreated animals. In contrast, mice infected at a later period proved far more resistant to infection than did untreated animals.

The duration of the negative and of the positive phase of resistance was affected by the amount of endotoxin injected. Marked increase in resistance of mice to infection with staphylococci or tubercle bacilli was still evident several weeks after treatment with pertussis vaccine or with purified lipopolysaccharide extracted from typhoid bacilli (Authors' summary).

C. H. PIERCE

Reversible Changes in the Susceptibility of Mice to Bacterial Infections: II. Changes Brought About by Nutritional Disturbances. R. W. SCHAEDLER and R. J. DUBOS. *J. Exper. Med.*, July, 1956, 104: 67–84.

A study has been made of the time variations in the susceptibility of albino mice to experimental infections with *Klebsiella pneumoniae*, *Staphylococcus aureus*, and *Mycobacterium tuberculosis*.

Susceptibility to infection was determined by two criteria: (*a*) mortality rates following intravenous injection of a known infective dose; (*b*) numbers of bacterial colonies that could be recovered from the tissues of the infected animals at various times after infection. When measured in terms of either one of these two criteria, susceptibility was consistently modified by temporary deprivation of food, and by various changes in the composition of the diet.

Increase in susceptibility to infection could be detected within a few hours to a few days depending upon the nature and intensity of the nutritional disturbance imposed upon the animal. Under the proper conditions, return to a

normal state of resistance could also occur within a very short time. There was commonly observed an explosive bacterial multiplication in mice receiving the infective dose shortly after being subjected to nutritional disturbances.

The facts disclosed in the present study, as well as findings reported by other investigators, make clear that profound changes in susceptibility to infection can be brought about by varied nonspecific procedures. These changes can occur within very short periods of time and are often rapidly reversible.

C. H. PIERCE

Increase in Induced Pulmonary Tumors in Mice Associated with Exposure to High Concentration of Oxygen. W. E. HESTON and A. W. PRATT. *Proc. Soc. Exper. Biol. & Med.*, June, 1956, 92: 451–454.

Strain A mice were injected intravenously at two-month intervals with 0.1 mg. dibenz[*a*, *h*] anthracene dispersed in 0.25 ml. of water. Immediately thereafter the animals were exposed for forty-eight hours to approximately 100 per cent oxygen. Four months later the animals were killed and they showed a significantly greater average number of pulmonary tumors than the controls injected with dibenz[*a*, *h*] anthracene and kept in air.

E. SOTO-FIGUEROA

Effect of Cortisone on the Radiation Reaction of the Rat Lung. R. F. BROWN. *Am. J. Roentgenol.*, April, 1956, 75: 796–806.

The effect of cortisone on the radiation reaction of the rat was studied during a ninety-day period after irradiation (3,000 r to the right lung in one exposure) by means of mortality, body-weight changes, serial roentgenograms of the lungs, and post-mortem macroscopic and microscopic examinations of the lungs. Cortisone did not significantly increase or decrease survival. Cortisone was not uniformly effective in preventing atelectasis and fibrosis, but did completely protect some animals from atelectasis, whereas atelectasis occurred in all animals not given cortisone. Cortisone may have prevented atelectasis in some animals by inhibiting the general inflammatory reaction following irradiation and thus maintaining aeration. When, with this treatment, the function of aeration was maintained, histologic examination of the lung ninety days after irradiation showed mild, generalized atrophy of all cellular elements, but no increased fibrosis. In irradiated animals with atelectasis there was increased fibrous tissue around bronchi and blood vessels, whether or not cortisone had been administered. This suggests that bronchial obstruction is important in the pathogenesis of radiation pneumonitis, and measures to prevent its occurrence are indicated (Author's summary).

T. H. NOEHREN

Tuberculin Anergy in Tuberculous Patients Treated with Tuberculin (in French). F. TISON. *Ann. Inst. Pasteur*, January, 1956, 90: 100–102.

In 17 patients with tuberculosis treated within the past twenty-five years with tuberculin in increasing doses, the intradermal reaction to tuberculin was negative. The first tuberculin injections were given in weekly intervals in doses of 0.25 ml. of a solution 1:1,000. At the end of treatment the dose of subcutaneous injection was as high as 2 gm. of tuberculin in some cases. The first tuberculin injection provoked no reaction. Increased doses (1/100 mg.) were followed by focal, local, and general reactions, which subsequently disappeared with stronger doses of 1 gm. and more. The patients showed tuberculin anergy at this stage. There was no significant increase in antibodies as examined by the tests of Middlebrook, Gernez-Rieux, and Taquet.

V. LEITES

Catalase Activity and Isoniazid Susceptibility of Pathogenic Mycobacteria (in French). J. VIALLIER and R. - M. CAYRE. *Ann. Inst. Pasteur*, March, 1956, 90: 373–374.

Catalase activity of 451 strains of tubercle bacilli isolated from patients with pulmonary tuberculosis with or without isoniazid treatment was determined with the method previously described by the authors: 98 strains were catalase negative; of these 62 were resistant to more than 20 γ of isoniazid, 21 to 1–20 γ, 15 susceptible to more than 1.0 γ. Fifteen catalase-positive strains were resistant to more than 20 γ of isoniazid per ml. In numerous cases the isolated strains corresponded to a mixture of susceptible and resistant strains.

V. LEITES

Inhibition of Isoniazid Acetylation *in Vitro* and *in Vivo*. W. JOHNSON and G. CORTE. *Proc. Soc. Exper. Biol. & Med.*, June, 1956, 92: 446–448.

The acetylation of isoniazid by pigeon liver extracts was found to be inhibited by various amino, amido, and hydrazino compounds. PAS, administered to rabbits in conjunction with isoniazid, produced a marked increase in the plasma level of free isoniazid. A similar effect was obtained with sulfanilamide.

E. SOTO-FIGUEROA

A Broncho-Constrictor Factor in Cigarette Smoke. T. A. LOOMIS. *Proc. Soc. Exper. Biol. & Med.*, June, 1956, 92: 337–340.

Six brands of "king-size" cigarettes were used in this experiment, including plain-tip and filter-tip types. One brand of "denicotinized" cigarette with and without filter-tip was also used. Mature guinea pigs received smoke from different brands as well as different lengths of cigarettes after transection of the cervical spinal cord and insertion of a Y-cannula in the upper trachea. A separate animal was used with each cigarette. It was found that the intensity of the bronchoconstrictor response was different with different lengths of cigarettes. The greatest effect on the lung of the guinea pig occurred when the cigarette had been "robot smoked" to 5 cm.; the least effect occurred when the cigarette was nearly full length (8.4 cm.). The active agent in the smoke is not nicotine, and the filter-tip did not influence the response of the lung to the cigarette smoke. The single brand of "denicotinized" cigarettes showed significantly less total bronchoconstrictor effect than did the conventional cigarettes.

E. SOTO-FIGUEROA

PUBLIC HEALTH AND EPIDEMIOLOGY

Factors Influencing the Attack Rate of Pulmonary Tuberculosis. A. L. COCHRANE, T. F. JARMAN, W. E. MIALL, and R. G. CARPENTER. *Thorax*, June, 1956, 11: 141–148.

Using the data from the two Rhonda Fach Surveys (1950–1951 and 1953), the annual attack rate of pulmonary tuberculosis has been calculated, and the influence of age, sex, contact, Mantoux status, overcrowding, and exposure to coal dust has been investigated. Age was found to affect this index similarly in both sexes. Significant differences in attack rate were found between those who were in contact with known infectious cases in the valley between the two surveys, and those who had no such contact; and between those who lived in the valley and worked outside it, and those who lived and worked there. Exposure to coal dust appears to modify and postpone the attack rate (Authors' summary).

A. G. COHEN

Prevention of Dissemination of Tuberculosis in Young Children. P. ZOELCH. *Deutsche med. Wchnschr.*, July 6, 1956, 81: 1082–1084.

On the basis of a questionnaire sent to fifteen children's hospitals and five children's sanatoriums, the following information was gathered. There was almost general agreement that administration of isoniazid to children with primary infection prevents the development of meningitis, even in the presence of miliary tuberculosis, in many cases. Among 1,651 children less than the age of two, hospitalized for active tuberculosis, only 8 cases (0.48 per cent) of meningitis and 5 cases (0.3 per cent) of miliary tuberculosis developed under isoniazid treatment.

Perforation of hilar lymph nodes into the bronchus was not observed to any greater degree with isoniazid treatment than without it. Side-reactions are rarely seen in children. The dosage of isoniazid is 10 mg. per kg. for three months and then for every other month for approximately a year.

H. ABELES

The Heaf Multiple Puncture Test Compared with the Mantoux Test in Epidemiological Surveys. E. M. RATHUS. *M. J. Australia*, April 28, 1956, 1: 696–698.

The Heaf test consists of a puncture of a film of undiluted adrenalized Old Tuberculin by a circle of six needles regulated to a depth of 1 or 2 ml. It is especially useful because of its great economy in tuberculin, tuberculin syringes, and needles. In addition, it is easy to use on children and useful in large surveys because an unskilled operator can implement the test. A comparison with the Mantoux test was made on

1,052 persons vaccinated with BCG and on 2,944 unvaccinated persons. In both series the Heaf test gave slightly more positive reactions and fewer severe reactions. In 127 cases, tests were regarded positive on Heaf test and negative by Mantoux. In 82 instances, positive Mantoux tests were negative by Heaf tests. It is concluded that the Heaf test is just as reliable as the standard Mantoux technique and that it has important practical advantages.

S. J. HADLEY

Prevention of Acute Respiratory Illness in Recruits by Adenovirus (RI-APC-ARD) Vaccine. M. R. HILLEMAN, R. A. STALLONES, R. L. GAULD, M. S. WARFIELD, and S. A. ANDERSON. *Proc. Soc. Exper. Biol. & Med.*, June, 1956, 92: 377–383.

The vaccine used in this study was prepared from infected tissue cultures of monkey renal epithelium and contained types 4 and 7 virus of the RI (adenovirus) family. The filtered virus suspensions were treated with formalin to a final concentration of 1:4,000 and held at 36°C. in a water bath with occasional shaking for six days. Safety and sterility tests were carried out before and after the addition of formalin. It was found that this vaccine induced high levels of neutralizing antibody in humans when given in a single 1 ml. dose intramuscularly. In 311 recruits vaccinated, it produced a marked reduction in the incidence of acute respiratory illness beginning one week after the initial dose of vaccine; only 4.8 per cent of those receiving RI vaccine were hospitalized for respiratory illness compared with 23.8 per cent of the control group of 313 which received a control injection.

E. SOTO-FIGUEROA

The Problem of Lung Cancer (in French). A. TUYNS. *Arch. belges méd. soc.*, July, 1955, 13: 392–403 (abstracted in *Bull. Hyg.*, May, 1956, 31: 527–528).

The great increase in primary lung cancer during recent years has been mainly of the epidermoid type. Since exogenous factors have an important etiologic role in the causation of this type of lung cancer and an insignificant one in the other types, it is stated that the role of tobacco is greater and the proportion of smokers higher in the epidermoid variety, whereas the proportion of smokers with adenocarcinoma is the same as in the normal population.

M. WEISS

Medico-Social Problems Presented by the Increasing Frequency of Lung Cancer (in French). J. FIRKET. *Arch. belges méd. soc.*, July, 1955, 13: 375–391 (abstracted in *Bull. Hyg.*, May, 1956, 31: 527).

Epidemiologic data indicates that the number of cases of primary lung cancer occurring annually in Belgium is approximately 6,000. The disease is more common in industrial cities than in rural areas, and is highly prevalent in the gas manufacturing industry. Cigarette smoke is considered to be a predisposing factor, as certain as work with asbestos, chromates, or uranium. It is also considered as established that in the age group of fifty to sixty-nine years in males the probability of developing cancer of the lung is fifteen times as great in smokers as in nonsmokers; for heavy smokers it may be as much as twenty-nine times as great.

Since atmospheric pollution is steadily increasing in Liège, and in certain industrial regions spectrophotometric analysis has detected benzpyrene, adsorbed by particles of soot, in the atmosphere, an attempt was made to correlate the distribution of cases of lung cancer with atmospheric pollution in Liège. A spot-map showed a greater density of such cases in that part of the Meuse valley where dust pollution, carried by prevailing winds, was greatest. The same distribution was found in other towns situated in river valleys, owing to prevailing winds.

M. WEISS

Occupational Risks in Cement Works (in Italian). V. GIULIANI and R. BELLI. *Med. d. lavoro*, December, 1955, 46: 715–724 (abstracted in *Bull. Hyg.*, May, 1956, 31: 544).

The working and clinical conditions of 180 employees in a cement factory were investigated. The dust concentration in different sections of the factory varied from 140 to 1,960 pp./cc. (Owens conimeter), with the greatest concentration found in the packing section. The mean size of the dust particles was 3.5 μ. Finished concrete contained no quartz, although it contained 2.5 per cent before entering the ovens.

Though not a single case of silicosis was found, 83 per cent of the workers had rhinopharyngitis, bronchitis, or emphysema. The chest roentgenograms of 20.5 per cent showed a marked increase in the linear markings and root shadows that was considered to be caused by the deposit of inert dust particles in the lung. It is concluded that the most important pathogenic effect of heating concrete dust appeared to be chronic bronchitis, which later could lead to pulmonary emphysema.

M. Weiss